



1	Warranty	5	7.2.3	Flap for toilet cassette	36
2	Introduction	7	7.3	Heating	37
2.1	General	8	7.4	Ventilation	37
2.2	Environmental tips	8	7.5	Windows	37
3	Safety	11	7.5.1	Hinged window with automatic hinges	38
3.1	Fire prevention	11	7.5.2	Blind and insect screen	40
3.1.1	Avoidance of fire risks	11	7.6	Skylights	41
3.1.2	Fire-fighting	11	7.6.1	Skylight with snap latch	42
3.1.3	In case of fire	11	7.6.2	Heki skylight (mini and midi)	42
3.2	General	12	7.7	Tables	44
3.3	Road safety	13	7.7.1	Swivel table of the round seating group	44
3.4	Towing	14	7.7.2	Suspension table with fold-out leg	45
3.5	Gas system	14	7.8	Lamps	45
3.5.1	General instructions	14	7.9	Bunk bed	45
3.5.2	Gas bottles	15	7.10	Sleeping conversion	46
3.6	Electrical system	16	7.10.1	Central seating group, front seating group	46
3.7	Water system	16	7.10.2	Round seating group	47
4	Before the journey	17	7.10.3	Lying surface of rear single beds	47
4.1	Initial start-up	17	8	Gas system	49
4.2	Connecting	17	8.1	General	49
4.3	Caravan couplings	19	8.2	Gas bottles	50
4.3.1	BPW stabiliser	19	8.3	Gas consumption	51
4.4	Detaching	20	8.4	Changing gas bottles	51
4.5	Payload	20	8.5	Gas isolator taps	52
4.5.1	Terms	20	9	Electrical system	53
4.5.2	Calculating the payload	22	9.1	General safety instructions	53
4.5.3	Loading the caravan correctly	23	9.2	12 V power supply	53
4.5.4	Caravan load, nose weight and axle load	24	9.3	Power pack	54
4.6	Television	25	9.4	240 V power supply	54
4.7	Road safety	25	9.4.1	240 V connection	55
5	During the journey	27	9.4.2	Connecting 240 V power supply	55
5.1	Driving with the caravan	27	9.5	Fuses	56
5.2	Brakes	27	9.5.1	12 V fuses	56
5.3	Driving in reverse	27	9.5.2	240 V fuse	57
6	Pitching the caravan	29	9.6	Connection to the towing vehicle	58
6.1	Handbrake	29	9.6.1	Thirteen-pin plug connection diagram	58
6.2	Wheel chocks	30	9.6.2	Towing vehicle installation	59
6.3	Corner steadies	30	9.7	Circuit diagrams	60
6.4	Entrance step (free-standing)	31	9.7.1	Block diagram 240 V	60
6.5	Waste water tank, mobile	32	9.7.2	Block diagram 12 V	61
6.6	240 V connection	32	10	Appliances	63
7	Living	33	10.1	General	63
7.1	Conversion door	33	10.2	Heater	64
7.1.1	Conversion door, outside	33	10.2.1	To heat properly	64
7.1.2	Conversion door, inside (handle)	34	10.2.2	Trumatic S 3004/S 5004 hot-air heater	65
7.1.3	Insect screen on the conversion door, extendable	34	10.2.3	Circulation fan	67
7.2	External flaps	35	10.3	Hot water source	68
7.2.1	Flap lock, elliptical-shaped	35	10.4	Cooker	70
7.2.2	Flap lock with recessed handle	36	10.4.1	Gas cooker	70



10.5	Refrigerator	72	13.6.1	Ceiling lamp	98
10.5.1	Refrigerator ventilation grill	72	13.6.2	Room lamp	98
10.5.2	Operation (Thetford)	72	13.6.3	Halogen spotlight	99
10.5.3	Refrigerator door locking mechanism	74	13.6.4	Recessed halogen light	99
			13.6.5	Types of bulbs for interior lighting	99
11	Sanitary fittings	75	13.7	Adjusting the springs of the blind and the insect screen	100
11.1	Water supply, general	75	13.8	Spare parts	100
11.2	Water canister	76	13.9	Vehicle identification plate	101
11.3	Water tank	76	13.10	Warning and information stickers	101
11.3.1	Drinking water filler neck with cap	76	13.11	Replacement keys	102
11.3.2	Filling with water	77			
11.3.3	Draining water (stopper)	77	14	Wheels and tyres	103
11.4	Filling the water system	78	14.1	General	103
11.5	Emptying the water system	80	14.2	Tyre selection	104
11.6	Waste water tank	81	14.3	Tyre specifications	105
11.7	Toilet compartment	81	14.4	Handling of tyres	105
11.8	Toilet	82	14.5	Changing wheels	105
11.8.1	Thetford toilet	82	14.5.1	General instructions	105
11.8.2	Emptying the sewage tank	83	14.5.2	Tightening torque	106
11.8.3	Winter operation	84	14.5.3	Changing a wheel	106
11.8.4	Temporary lay-up	84	14.5.4	Changing a wheel at alloy wheel rims	108
12	Care	85	14.6	Spare wheel support	108
12.1	External care	85	14.7	Tyre pressure	108
12.1.1	Washing with a high-pressure cleaner	85	15	Troubleshooting	113
12.1.2	Washing the vehicle	85	15.1	Chassis	113
12.1.3	Windows of acrylic glass	86	15.2	Braking system	113
12.1.4	Hot galvanized chassis	86	15.3	Electrical system	114
12.1.5	Underbody	86	15.4	Gas system	115
12.2	Interior care	87	15.5	Gas cooker	115
12.3	Water system	88	15.6	Heater and hot water source	115
12.3.1	Cleaning the water canister or the water tank	88	15.6.1	Trumatic S hot-air heater	116
12.3.2	Cleaning the water pipes	88	15.6.2	Truma hot water source	116
12.3.3	Disinfecting the water system	89	15.7	Refrigerator	116
12.4	Winter care	89	15.8	Water supply	117
12.5	Lay-up	90	15.9	Body	118
12.5.1	Temporary lay-up	90	16	Special equipment	119
12.5.2	Winter lay-up	91	16.1	Weight details for special equipment	119
12.5.3	Starting up the vehicle after a temporary lay-up or after lay-up over winter	92	17	Technical data	121
13	Customer service and maintenance	93	17.1	Technical data	121
13.1	Inspection work	93			
13.2	Maintenance work	93			
13.3	BPW stabiliser	94			
13.4	Braking system BPW chassis	94			
13.5	Replacing bulbs, external	95			
13.5.1	Front lights	96			
13.5.2	Rear lights	96			
13.5.3	Side lights	97			
13.5.4	Types of bulbs for exterior lighting	97			
13.6	Replacing bulbs, internal	97			



Checklist before first journey of the vehicle

Observe the following instructions before first journey of the vehicle:



- ▶ **Re-tighten the wheel nuts/wheel bolts after 50 km (30 miles).**
- ▶ **Read the instruction manual to avoid personal and material damage.**

Observe the following instructions before each journey of the vehicle:



- ▶ **Check the tyre pressures.**
See Tyre pressure section.
- ▶ **Load the vehicle correctly. Observe the maximum permissible gross weight.**
See Payload section.
- ▶ **In case of external temperatures below 0 °C first heat vehicle, then fill water system.**
See Water supply/Filling the water tank section.
- ▶ **Gas bottles should only be transported within the designated gas bottle compartment and should be checked to be secure and in the off position prior to travelling.**
- ▶ **Keep forced ventilations clear.**
See Skylights and Ventilation sections.
- ▶ **Before filling the towing vehicle with fuel switch off gas-operated appliances.**

If there is any risk of frost, observe the following instructions:



- ▶ **If there is any risk of frost, always heat the vehicle.**
See Heater section.
- ▶ **If the vehicle is not being used when there is risk of frost, empty the entire water system. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and drain cocks open. This will avoid frost damage to appliances and to the vehicle.**
See Emptying the water system section.

Checklist before first journey of the vehicle





We reserve the right to alter the construction, equipment and the scope of delivery. Special equipment is also listed that is not included in the standard scope of delivery. The descriptions and illustrations in this brochure do not relate to a particular version. For all details, only the respective equipment list is valid.





Please read this instruction manual completely before using the vehicle for the first time!

Always keep this instruction manual in the vehicle. Also inform all other users of the safety regulations.



- ▶ The non-observance of this symbol can lead to personal injury.



- ▶ The non-observance of this symbol can lead to damage being caused to, or inside the vehicle.



- ▶ This symbol indicates recommendations or special aspects.



- ▶ This symbol indicates actions which lead to environmental awareness.

This instruction manual contains sections which describe model-specific equipment or special equipment. These sections are not specially marked. It may be that your vehicle has not been fitted with this special equipment. In some cases, the actual equipment of your vehicle may therefore be different from that shown in some illustrations and descriptions.

However, your vehicle may be fitted with other special equipment not described in this instruction manual.

Special equipment is described when an explanation is required.

Adhere to the instruction manuals which are separately enclosed.



- ▶ The details "right", "left", "front" and "rear" always refer to the vehicle in direction of travel.
- ▶ All dimensions and weight details are "approximate".
- ▶ The metric specifications are binding for physical dimensions.

Should the vehicle be subjected to damage due to a failure to follow the instructions in this instruction manual, then the warranty claim is deemed invalid.

Our vehicles are subjected to continuous development. Please understand that we reserve the right to alter the form, equipment and technology. Therefore, no claims can be made against the manufacturer as a result of the contents of this instruction manual. The equipment which was known and included at the time of going to press is described.

The reprinting, translation and copying, including extracts is not permitted without prior written authorisation from the manufacturer.



- ▶ The vehicle comes without a wheelbrace and vehicle jack. We suggest you buy a usual commercial wheelbrace and a scissor-type jack before first use of your caravan, in order to have it ready in the case of mishap or emergency. Our authorised dealers and service centres will be happy to advise you.



2.1 General

The vehicle is a product of Capron GmbH, Berghausstraße 1, D-01844 Neustadt.

The vehicle is constructed in accordance with the latest technology and the recognised safety regulations. Nevertheless, personal injury may result and the vehicle may be damaged if the safety instructions in this instruction manual are not followed.

Only use the vehicle in a technically impeccable condition. Follow the instructions in the instruction manual.

Malfunctions which impair the safety of persons or the vehicle should be immediately remedied by qualified personnel. To avoid further damages, observe the duty to avert, minimize or mitigate loss for the user during faults.

Have the vehicle's braking and gas systems inspected and repaired by an authorised specialist workshop only.

Alterations to the body are only to be carried out with the authorisation of the manufacturer.

Luggage and accessories may only be transported up to the maximum permissible gross weight.

Observe the test and inspection periods stipulated by the manufacturer.

2.2 Environmental tips



- ▷ Be considerate of the environment.
- ▷ Remember that: All kinds of waste water and household waste are not to be disposed of in drains or in the open countryside.
- ▷ On board, collect waste water only in the waste water tank or – if necessary – in other containers designed for that purpose.
- ▷ Only empty the waste water tank and toilet cassette or sewage tank at disposal stations at the camping or caravan sites, which are especially provided for this purpose. When stopping in towns and communities, observe the instructions at caravan sites or ask where there are disposal stations.
- ▷ Empty waste water tank as often as possible, even when it is not completely full (hygiene).
If possible, flush out waste water tank and, if necessary, drainage pipe with fresh water every time it is emptied.
- ▷ Never allow the toilet cassette or sewage tank to become too full. Empty the toilet cassette or sewage tank frequently, at the latest as soon as the level indicator lights up.
- ▷ Separate household waste according to glass, tin cans, plastic and wet waste also when on a journey. Enquire at the town or community authority about disposal points. Household waste is not to be disposed of in waste paper baskets which are situated at car parks.
- ▷ Empty waste bins as often as possible into the containers provided for this purpose. This helps to avoid unpleasant smells and an accumulation of rubbish on board.
- ▷ When parked, do not allow the engine of the towing vehicle to run more than necessary. When running idle, a cold engine releases more contaminants than usual. The running temperature of the engine is achieved more quickly whilst the vehicle is in motion.



- ▷ Use an environmentally-friendly WC chemical agent for the WC which can also be biologically degraded and only use small doses.
- ▷ When staying in towns and communities for long periods, search for parking areas which are specially reserved for caravans and towing vehicles. Enquire at the town or community authority about parking spaces.
- ▷ Always leave the parking places in a clean condition.





Chapter overview

This chapter contains important safety instructions. The safety instructions are for the protection of persons and property.

The instructions address the following topics:

- fire prevention and what to do in case of fire
- general care of the vehicle
- road safety of the vehicle
- towing
- gas system of the vehicle
- electrical system of the vehicle
- water system of the vehicle

3.1 Fire prevention

3.1.1 Avoidance of fire risks



- ▶ Never leave children in the vehicle unattended.
- ▶ Keep flammable materials clear of heating and cooking appliances.
- ▶ Halogen lamps can get very hot. When the light is switched on, there must always be a safety distance of 30 cm between light and flammable objects. Fire hazard!
- ▶ Never use portable heating or cooking appliances.
- ▶ Only authorised qualified personnel may make changes to the electrical system, gas system or appliances.

3.1.2 Fire-fighting



- ▶ Always carry a dry powder fire extinguisher in the vehicle. The fire extinguisher must be approved, tested and close at hand.
- ▶ Have the fire extinguisher tested at regular intervals by authorised qualified personnel. Observe the date of testing.
- ▶ Always keep a fire blanket near the cooker.

3.1.3 In case of fire



- ▶ Evacuate all passengers.
- ▶ Cut off the electrical power supply and disconnect from the mains.
- ▶ Close regulator tap on the gas bottle.
- ▶ Sound the alarm and call the fire brigade.
- ▶ Fight the fire if this is possible without risk.



- ▷ Acquaint yourself with the position and operation of the emergency exits.
- ▷ Keep escape routes clear.
- ▷ Observe the fire extinguisher instructions for use.



All windows and doors which meet the following requirements are considered as emergency exits:

- Open to the outside or can be shifted in horizontal direction
- Opening angle at least 70°
- Minimum diameter of clearance = 450 mm
- Maximum distance from the vehicle floor = 950 mm

3.2 General



- ▶ The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the oxygen needs to be replaced on a constant basis. For this purpose, forced ventilation options (e.g. skylights with forced ventilation, mushroom-shaped vents or floor vents) are fitted to the vehicle. Never cover or block forced ventilations from the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO₂ levels.
- ▶ Do not use storage compartments as places for people or animals to stay or sleep in. These spaces are not forced-air ventilated. There is a danger of suffocation due to oxygen deprivation or exhaust from the heater.
- ▶ Observe the headroom of the doors.
- ▶ If a roof rack with ladder is installed, only climb the ladder if the rear corner steadies have been extended or the caravan is connected to the towing vehicle or the caravan has been secured against tilting at the back. Otherwise the caravan can tip over to the back. Danger of falling!



- ▷ As far as the appliances (heater, cooker, refrigerator, etc.) are concerned, the instruction manuals are authoritative. It is imperative that they be observed.
- ▷ Fitting accessories or special equipment can alter the dimensions, weight and road behaviour of the vehicle. Some of the parts must be entered in the vehicle papers.
- ▷ Only use wheel rims and tyres which are approved for the vehicle. Information concerning the size of the approved wheel rims and tyres is included in the vehicle documents or can be obtained from authorised dealers and service centres.
- ▷ Firmly apply the handbrake when parking the vehicle.



- ▷ When leaving the vehicle, it is imperative that all doors, external flaps and windows are closed.
- ▷ The vehicle may only be driven by drivers who hold a driving licence which is valid for the respective vehicle class.
- ▷ When selling the vehicle, hand over all instruction manuals for the vehicle and the fitted appliances.



3.3 Road safety



- ▶ Before commencing the journey, carry out a functional check of indicating and lighting equipment and the brakes.
- ▶ If the vehicle has been stationary for a long period (approx. 10 months) have the braking and gas systems checked by an authorised specialist workshop.
- ▶ Before commencing the journey, store the television securely.
- ▶ During the journey, no persons are to travel inside the caravan.
- ▶ When driving through underpasses, tunnels, etc. observe the overall height of the vehicle (refer to the technical data in the vehicle documents).
- ▶ In winter, the roof must be free of snow and ice before commencing the journey.
- ▶ Before commencing the journey, empty the waste water tank.
- ▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.
- ▶ Do not operate the heater at petrol stations. Danger of explosion!
- ▶ Do not operate the heater in closed spaces. Danger of suffocation!



- ▷ Before commencing the journey, distribute the payload evenly within the vehicle (see chapter 4).
- ▷ When loading the vehicle and when taking a rest from driving, in order to load luggage or food, for example, observe the maximum permissible gross weight and axle loads (refer to vehicle documents).
- ▷ Do not exceed the maximum permissible nose weight on the caravan coupling and do not let the weight fall below the minimum nose value. Load the caravan accordingly.
- ▷ While driving with your caravan, the towing vehicle must be equipped with two external mirrors.
- ▷ Before commencing the journey, ensure that all cupboard doors, the toilet compartment door and all drawers and flaps are secure. Engage the refrigerator door securing device.
- ▷ Before commencing the journey, convert the tables into a bed foundation or fasten them in the holder.
- ▷ Before commencing the journey, close windows and skylights.
- ▷ Before commencing the journey, close all external flaps and lock them.
- ▷ Before commencing the journey, remove the external supports and retract the corner steadies or steady legs, which are fitted to the vehicle.
- ▷ Before commencing the journey, crank the jockey wheel up as far as possible.
- ▷ During the initial journey and each time after changing a wheel, re-tighten the wheel bolts/wheel nuts after 50 km (30 miles). Subsequently inspect them at regular intervals in order to ensure that they are firmly seated. See chapter 14 for tightening torque.
- ▷ Tyres may not be older than 6 years as the material becomes brittle over time (see chapter 14).
- ▷ The swivel table is not secured to the floor. Before the journey, lower the swivel table and secure it to the benches using the straps provided.



3.4 Towing



- ▶ Care is to be taken when connecting and detaching a trailer. Risk of accident and injury!
- ▶ No persons are to be between the towing vehicle and the trailer during positioning for connecting and detaching.

3.5 Gas system

3.5.1 General instructions



- ▶ Before commencing the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main isolator tap on the gas bottle.
- ▶ All gas-operated devices (heater, cooker, oven, grill, refrigerator - depending on the equipment) must be switched off for refuelling, on ferries or in the garage. Danger of explosion!
- ▶ Do not use gas-operated devices in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- ▶ Only have the gas system maintained, repaired or altered by an authorised specialist workshop.
- ▶ Have the gas system checked by an authorised specialist workshop according to the national regulations before commissioning. This also applies for not registered vehicles. For modifications to the gas system have the gas system immediately checked by an authorised specialist workshop.
- ▶ The gas pressure regulator and exhaust gas pipes must also be inspected. The gas pressure regulator has to be replaced after 10 years at the latest. The vehicle owner is responsible for seeing that this is carried out.
- ▶ In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- ▶ If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.). Do not check tightness of gas-conducting parts and pipes with an open flame.
- ▶ Only the stipulated devices may be connected to internal connections. Do not operate any device outside the vehicle if it is connected to an internal connector.
- ▶ Before using the cooker make sure that there is sufficient ventilation. Open windows or the skylight.
- ▶ Do not use the gas cooker or gas oven for heating purposes.
- ▶ If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- ▶ Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function from time to time.
- ▶ The built-in gas devices are exclusively meant for use with propane or butane gas or a mixture of both. The gas pressure regulator as well as all built-in gas devices are designed for a gas pressure of 30 mbar.



- ▶ Propane gas is capable of gasification up to -42°C , whereas butane gas gasifies at 0°C . Below these temperatures no gas pressure is available. Butane gas is unsuitable for use in winter.
- ▶ Regularly inspect the gas tube fitted to the gas bottle connection for tightness. The gas tube must not have any tears and must not be porous. Have the gas tube replaced by an authorised specialist workshop no later than ten years after the manufacturing date. The operator of the gas system must see to it that the parts are replaced.
- ▶ Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block up the standard forced ventilations. Otherwise gas that is emitted can not be diverted to the outside.
- ▶ The gas bottle compartment must not be used as storage space.
- ▶ Secure the gas bottle compartment against unauthorised access. To do this, lock the compartment.
- ▶ The regulator tap on the gas bottle must be accessible.
- ▶ Only connect gas-operated devices (e.g. gas grill) which have been designed for a gas pressure of 30 mbar.
- ▶ The exhaust gas pipe must be fitted tightly to the heating system and to the vent and must be sealed. The exhaust gas pipe must not show any evidence of damage.
- ▶ Exhaust fumes must be able to escape into the atmosphere unhindered and fresh air must be able to enter unhindered. For this reason, keep the exhaust pipe and intake openings clean and unobstructed (e.g. free from snow and ice). For this reason, no snow walls or aprons may lie against the vehicle.

3.5.2 Gas bottles



- ▶ Gas bottles are only to be transported within the designated gas bottle compartment.
- ▶ Place the gas bottles in vertical position in the gas bottle compartment.
- ▶ Fasten the gas bottles so that they are unable to turn or tilt.
- ▶ Connect the gas tube to the gas bottle without tension.
- ▶ If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- ▶ Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- ▶ The gas pressure regulator or the gas tube must only be secured with a suitable gas spanner (Do **not** overtighten).
- ▶ Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- ▶ Use the gas pressure regulator defroster if the temperature falls below 5°C .



- ▶ The designated gas bottle compartment will accommodate two gas bottles, i. e. Calor Gas Butane/Propane or Camping Gaz. All gas bottles **must** be fitted with the appropriate regulator.
- ▶ Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- ▶ Never block the floor ventilation openings below the gas bottles.

3.6 Electrical system



- ▶ Only allow qualified personnel to work on the electrical system.
- ▶ Prior to carrying out work on the electrical system, switch off all devices and lights, disconnect the battery and disconnect the vehicle from the mains.
- ▶ Only use original fuses with the stipulated values.
- ▶ Only replace defective fuses when the cause of the defect is known and has been remedied.
- ▶ Never bridge or repair fuses.

3.7 Water system



- ▶ Water left standing in the water tank or in the water pipes becomes undrinkable after a short period. Therefore, before each use of the vehicle, thoroughly clean the water pipes and the water tank. After each use of the vehicle completely empty the water tank and the water pipes.
- ▶ In the case of lay-ups lasting more than a week disinfect the water system before using the vehicle (see chapter 12).



- ▷ If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Make sure that the 12 V power supply on the main switch is switched off. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and all drain cocks open. Frost damage to appliances, frost damage to the vehicle and deposits in water-carrying components can be avoided in this way.



Chapter overview

This chapter contains important information which has to be noted before commencing your journey or carrying out any tasks before the journey.

The instructions address the following topics:

- initial start-up
- connecting and detaching to the towing vehicle
- caravan coupling
- calculating the payload
- correct loading of the caravan
- storing the television

At the end of the chapter there is a checklist which once again summarises the most important points.

4.1 Initial start-up



- ▷ During the initial journey and each time after changing a wheel, re-tighten the wheel bolts/wheel nuts after 50 km (30 miles). Subsequently inspect them at regular intervals in order to ensure that they are firmly seated. See chapter 14 for tightening torque.



- ▷ Check whether the road light system of the towing vehicle corresponds to that of the caravan (see chapter 9), and whether a nominal voltage of 12 V is provided by the towing vehicle.

The caravan is supplied with a set of keys.

Always deposit a replacement key outside the vehicle. Make a note of the key number. Our authorised dealers and workshops can offer assistance in case of loss.

Further information in chapter 13.

4.2 Connecting



- ▶ Care is to be taken when connecting and detaching a trailer. Risk of accident and injury!
- ▶ No persons are to be between the towing vehicle and the trailer during positioning for connecting and detaching.
- ▶ Observe the permissible nose weight and rear axle load of the towing vehicle. Nose weight and rear axle load must not be exceeded. The values of the nose weight and rear axle load are included in the documents of the vehicle and the caravan coupling.
- ▶ Ensure that the interior of the coupling is not soiled and that the movable parts of the coupling (not the ball retainer) are lubricated.
- ▶ The tow ball is not to be lubricated when using a stabiliser. The friction pads are pressed against the coupling ball and thereby generate an anti-rolling moment. This anti-rolling effect is only guaranteed when the towing vehicle coupling head is free of lubricant and other residues. When lubricating the stabiliser ensure that no lubricant is on the friction pads.



- ▷ Caravan with an overrun brake: Do not connect or detach caravan with the overrun brake on.
- ▷ Caravan coupling with detachable ball neck: If the ball neck is mounted incorrectly, there is the danger of the trailer breaking away. Observe the instruction manual for the caravan coupling.
- ▷ In order to connect the vehicle, crank the supporting jockey wheel down and set it down on the ground.
- ▷ Do not use the stabilising lever of the stabiliser as a maneuvering aid.



- ▷ Check whether the caravan's connector plug fits into the socket of the towing vehicle. If connector plug and socket do not match, ask your authorised dealers and workshops for adapting options.
- ▷ Further information about the stabiliser can be obtained in the manufacturer's instruction manual.

Connecting:

- Connect the caravan (see section 4.3.1). The coupling jaw and the ball must interlock and are not to be loosely superposed. The coupling jaw must completely surround the ball.
- Connect the breakaway brake cable with a loop to a suitable anchorage point on the vehicle, do **not** attach to the tow ball. Thereby, observe the cable length: The cable must not trail on the ground or trigger the braking function around corners.
- Crank the jockey wheel up as far as possible. Adjust the running role in parallel to the direction of travel and to the draw box.
- Insert the connector plug of the caravan in the socket of the towing vehicle. Ensure that the hooks of the safety cover engage with the plug. The hooks prevent the plug from becoming loose during the journey.
- Put the connection cable in a loose loop across the drawbar. Make sure that it does not touch the ground.
- Check whether the caravan coupling is mounted correctly on the coupling ball.
- Check whether corner steadies and jockey wheel are raised.
- Check the caravan lighting system whilst the towing vehicle is connected.



4.3 Caravan couplings



- ▷ Before connecting, ensure that the tow ball of the coupling device is free of dirt and grease.

4.3.1 BPW stabiliser



- ▶ The surface of the coupling ball must be metallic bright. A damaged or soiled coupling ball causes increased wear of the friction pads. A greased coupling ball affects the stabilising effect considerably.

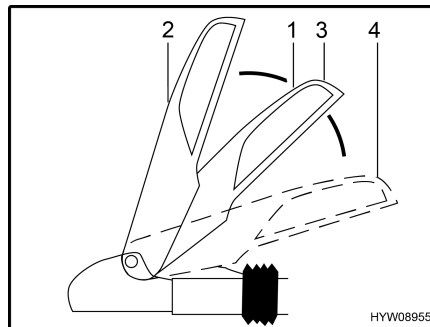


Fig. 1 BPW stabiliser

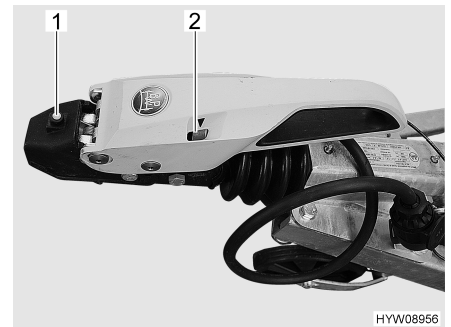


Fig. 2 Wear indicator and coupling check

Connecting:

- Pull the coupling handle (Fig. 1,1) upwards into position "Open" (Fig. 1,2). Stabiliser is open.
- Place the opened stabiliser on the caravan coupling of the towing vehicle and release the coupling handle. The handle glides automatically back to its initial position (Fig. 1,3).
- In addition, push the coupling handle down with your hand (not with your foot). Closing and securing is carried out automatically.
- Conduct a visual inspection: If the stabiliser is coupled correctly, the green pin (Fig. 2,1) of the indicator will be visible.
- Activate the stabilising mechanism. To do this, press the coupling handle downwards (Fig. 1,4) from the closed position (Fig. 1,3) to its stop limit.
- Check the position of the wear indicator (Fig. 2,2) of the stabilising device:
 - Wear indicator in the green OK zone: Everything is okay.
 - Wear indicator in the yellow transition zone: Replace friction pads.
 - Wear indicator in the red STOP zone: Do not drive with the caravan, replace friction pads immediately.

To deactivate the stabilisation mechanism, e.g. for manoeuvring, pull the coupling handle (Fig. 1,1) slowly upward to the closed position (Fig. 1,3).



4.4 Detaching



- ▶ Care is to be taken when connecting and detaching a trailer. Risk of accident and injury!
- ▶ In addition, observe the safety instructions with respect to connecting included in this instruction manual.

Detaching:

- Apply the caravan handbrake.
- Place the wheel chocks behind both of the wheels.
- Remove the connector plug of the caravan from the towing vehicle socket and insert it in the holder on the drawbar.
- Remove the breakaway cable from the towing vehicle.
- Crank the jockey wheel down until it is set firmly on the ground. Now loosen the caravan coupling.
- Using the jockey wheel, lift the drawbar until the towing vehicle can be driven away without risk.

4.5 Payload



- ▶ Overloading the vehicle and wrong tyre pressure can cause tyres to burst. You can lose control of the vehicle.
- ▶ Only the maximum permissible gross weight and the mass in a ready-to-drive condition, not the actual weight of the vehicle, is stated in the vehicle documents. For your own safety, we recommend that you have your loaded vehicle (with all luggage and personal objects) weighed on a public weighbridge before you set out on your journey.



- ▷ Do not exceed the maximum permissible gross weight stated in the vehicle documents by the payload.
- ▷ Built-in accessories and special equipment reduce the payload.
- ▷ Adhere to the axle load stated in the vehicle documents.

Load the caravan so that the drawbar coupling head is not pushed downwards due to the permissible nose weight. Heavy objects should be close to the axles and a weight centre should be in the centre of the vehicle.

When loading the caravan observe:

- The permissible maximum caravan load
- The maximum permissible nose weight (e.g. 50 kg)
- The minimum nose weight in accordance with national regulations

This information is in the towing vehicle instruction manual.

4.5.1 Terms



- ▷ Technically speaking, the term "mass" has now replaced the term "weight". However, "weight" is still the term more frequent in common use. For better understanding, "mass" is therefore only used in the following sections for fixed formulations.
- ▷ All specifications according to EU norm DIN EN 1645-2.

**Maximum permissible gross weight in a laden condition**

The maximum permissible gross weight in a laden condition is the weight that a vehicle may never exceed.

The maximum permissible overall weight in laden condition consists of the **mass in ready-to-drive condition** and of the **payload**.

In the vehicle documents, the manufacturer has specified the maximum permissible gross weight in a laden condition.

Mass in ready-to-drive condition

The mass in ready-to-drive condition is the weight of the ready-to-drive standard vehicle.

The mass in ready-to-drive condition is made up as follows:

- Unladen weight (mass of the empty vehicle) with factory-installed standard equipment, including a water system filled to 100 % (water tank and pipes) and gas bottle filled to 100 %
- Basic equipment weight

Basic equipment includes all equipment and fluids required for safe and proper vehicle use. The weight of the basic equipment includes, for example, the power cables for the 240 V power supply.

The waste water and sewage tanks are empty.

In the vehicle documents, the manufacturer specifies the mass in ready-to-drive conditions.

Payload

The payload is made up as follows:

- Additional equipment
- Personal equipment

You will find explanations on the individual components of the payload in the following text.



- ▷ The vehicle's payload can be increased by reducing the weight in a ready-to-drive condition. To do this, it is allowed for example to empty the fluid containers or to remove the gas bottles.

Additional equipment

Additional equipment includes accessories and special equipment. Examples of additional equipment include:

- Spare wheel
- Hot water supply

Chapter 16 lists the weights of the various items of special equipment; they may also be obtained from the manufacturer.

Personal equipment

Personal equipment includes all items in the vehicle that are not included in the additional equipment. For example, personal equipment can include the following:

- Foodstuffs
- Crockery
- Television
- Radio
- Clothes
- Bedding
- Toys
- Books
- Toiletries



No matter where kept, personal equipment also includes:

- Bikes
- Boats
- Surfboards
- Sports equipment

For the personal equipment, according to the applicable regulations, the manufacturer must use a minimum weight that is determined according to the following formula:

Formula Minimum weight M (kg) = $10 \times N + 10 \times L + 30$

Explanation N = maximum number of beds, as stated by the manufacturer
L = total length of the caravan in metres, not including the drawbar

Example Caravan with 4 beds and a length of 5 m:
Minimum weight M (kg) = $10 \times 4_{\text{beds}} + 10 \times 5_{\text{metres}} + 30 = 120 \text{ kg}$

4.5.2 Calculating the payload



- ▶ The payload calculation at the factory is partly based on all-inclusive weights. For safety reasons, the maximum permissible gross weight in a laden condition must not be exceeded.
- ▶ Only the maximum permissible gross weight and the mass in a ready-to-drive condition, not the actual weight of the vehicle, is stated in the vehicle documents. For your own safety, we recommend that you have your loaded vehicle (with all luggage and personal objects) weighed on a public weighbridge before you set out on your journey.

The payload (see section 4.5.1) is the difference in weight between

- Maximum permissible gross weight in a laden condition and
- Vehicle mass complete in a ready-to-drive condition.

Example for calculating the payload

	Mass in kg to be calculated	Calculation
Maximum permissible gross weight according to vehicle documents	1500	
Vehicle mass in a ready-to-drive condition, including basic equipment according to vehicle documents	- 1200	
This results in a permissible payload of	300	
Additional equipment	- 40	
For the personal equipment this results in	= 260	

The calculation of the payload from the difference between the maximum permissible gross weight in laden condition and the mass specified by the manufacturer in ready-to-drive condition is however only a theoretical value.

Only if the vehicle is weighed with full tanks, full gas bottles and complete additional equipment on a public weighbridge, can the actual payload be determined.



The actual payload is the difference between the maximum permissible gross weight in laden condition and the weighed vehicle weight.

The result is the weight that is permitted for the actual load of the personal equipment.

4.5.3 Loading the caravan correctly



- ▶ Never exceed the maximum permissible gross weight.
- ▶ Distribute the load evenly on the left and right sides of the vehicle.
- ▶ Store all objects in such a way that they cannot slip.
- ▶ Store heavy objects (awning, tin cans, etc.) close to the axles. Low-lying storage spaces whose doors do not open in the direction of travel are particularly suited for storing heavy objects.
- ▶ Stack light objects (laundry) in the roof storage cabinets.
- ▶ Never concentrate the caravan load at the rear.

The payload arrangement recommended cannot be adhered to consequently as the storage facilities are to be found throughout the complete caravan. Ensure that heavy items are close to the axles and the lower area, i.e. directly above the vehicle floor. Store heavy objects (awning, tin cans, etc.), if possible, in the towing vehicle.

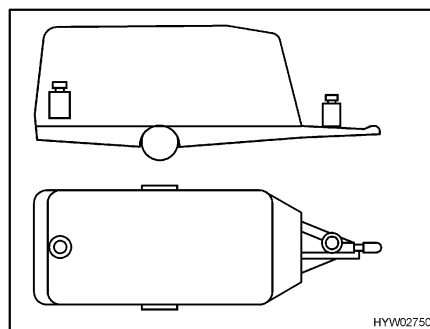


Fig. 3 Incorrect weight distribution

Incorrectly loaded

Loads stored apart from each other (Fig. 3) lead to inclination to skid.

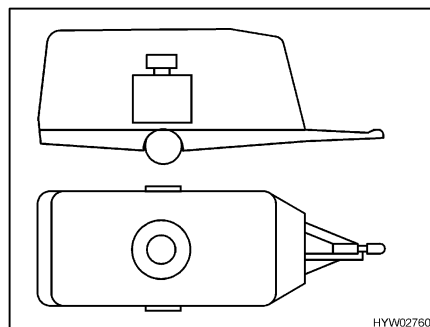


Fig. 4 Correct weight distribution

Correctly loaded

Do not store heavy objects such as awnings, tin cans, etc. in the caravan but rather in the towing vehicle. Secure bicycles on the roof of the towing vehicle. Store all loads close to the axle (Fig. 4).



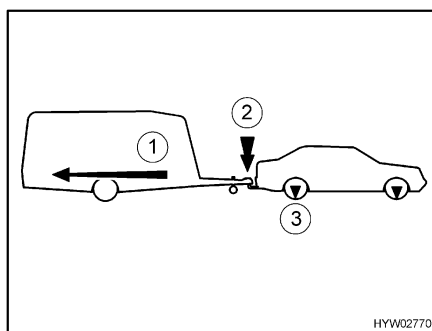
4.5.4 Caravan load, nose weight and axle load



- ▷ The nose weight of the caravan may not exceed 100 kg.



- ▷ The information on the towing vehicle documents is important for the selection of the car and caravan.



- 1 Caravan load
- 2 Nose weight
- 3 Axle load

Fig. 5 Caravan load, nose weight and axle load

Caravan load

The caravan load (Fig. 5,1) stipulated in the towing vehicle documents provides information as to the **maximum weight** which the towing vehicle is permitted to tow. The caravan load refers to the **actual** weight of the caravan and **not** to the maximum permissible gross weight of the caravan.

Example

The towing vehicle may tow 1,200 kg. If the caravan has a maximum permissible gross weight of 1,200 kg and in fact weighs 900 kg, it can be loaded with another 300 kg. If however the caravan has a maximum permissible gross weight of 1,400 kg, it may only be loaded to a maximum of 1,200 kg.

Nose weight

The nose weight (Fig. 5,2) specifies how much weight the caravan drawbar can apply to the caravan coupling of the towing vehicle. Information is to be found in description of the caravan couplings and the vehicle documents. Therefore, a caravan coupling with a permissible nose weight of 50 kg may not support a loaded caravan which has a nose weight of 75 kg. Additionally, for the permissible gross weight the nose weight must be taken into consideration. If necessary the payload in the towing vehicle must be reduced by the amount of the nose weight.

The maximum permissible gross weight for the towing vehicle and for the caravan is not to be exceeded.

Only when the nose weight is adapted optimal to the towing vehicle and caravan combination, the towing vehicle and caravan achieves its maximum stability and safety in highway traffic. The optimal nose weight is simultaneously the maximum possible nose weight.



- Please refer to the vehicle documents and the description of the caravan coupling for the maximum permissible nose weight.
- If different values are specified in the vehicle documents and in the description of the caravan coupling: Please select the **lowest** value. This value is the **maximum possible nose weight** for the towing vehicle and caravan.
- Check the nose weight before each journey, e.g. with a nose weighing scales. To obtain a correct value, position the nose weighing scales vertical under the coupling jaw and place the caravan drawbar horizontal.
- The payload in the caravan must be distributed in such a way that the measured nose weight comes as close as possible to the maximum permissible nose weight. The maximum permissible nose weight is not be exceeded.

Axle load

The axle load (Fig. 5,3) is also specified in the vehicle documents of the towing vehicle and provides information concerning the permissible maximum load for the front and rear axles. The axle load may not be exceeded by a trailer. The above illustration shows where which forces act on the car and caravan.

4.6 Television



- Before commencing the journey, store the television securely.

4.7 Road safety



- Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.

Before commencing the journey, work through the checklist:

Towing vehicle with caravan

No.	Checks	Checked
1	All vehicle documents are on board	
2	Two external mirrors fitted to towing vehicle	
3	Nose weight has not been exceeded or fallen below the minimum	
4	Tyres in proper condition	
5	Road lighting system working	
6	Overrun brake functions correctly	
7	Brakes react evenly	
8	When braking, the towing vehicle and caravan remain in the lane	
9	Total height determined and noted. Keep the height information close at hand in the towing vehicle	

Water system housing body

10	Water system emptied in case of risk of frost. Watertaps and drain cocks open	
----	---	--

**Housing body, outside**

No.	Checks	Checked
11	Roof free of snow and ice (in winter)	
12	External connections and lines disconnected and stored away	
13	External supports removed	
14	Corner steadies and jockey wheel cranked as high as possible	
15	Wheel chocks removed and stored away	
16	Entrance step is stored securely or retracted	
17	External flaps closed and locked	
18	Conversion door locked	
19	Awning light switched off	

Housing body, inside

20	Windows and skylights closed and locked	
21	Television removed from the support and securely stored	
22	Television antenna retracted (if one is built in)	
23	Loose parts stored away or fixed in position	
24	Open storage spaces empty	
25	No gas cartridges or other easily flammable materials stored in the roof cupboard of the awning light	
26	Refrigerator door secured	
27	Refrigerator set to 12 V operation	
28	All drawers and flaps closed	
29	Inner doors and table secured	
30	Swivel table for the round seating group at the rear: In order to fix the swivel table to the cross bench, use the belt fitted in the centre	
31	Dinette table hooked in the lower mounting rail	

Gas system

32	Gas bottles firmly fixed in the gas bottle compartment so that they are unable to turn	
33	If the gas bottles are not connected to the gas tube, always place the protective cap on top	
34	Regulator tap on the gas bottle and gas isolator taps are closed	



Chapter overview

This chapter contains instructions on how to drive the caravan.

The instructions address the following topics:

- driving speed
- brakes
- driving in reverse

5.1 Driving with the caravan



- ▶ During the journey, no persons are to travel inside the caravan.
- ▶ The caravan constructions were designed for a maximum permissible speed of 100 km/h (60 mph). Therefore never drive faster than 100 km/h (60 mph).
- ▶ Please always observe the speed limits in the individual countries.

The main differences between driving with a caravan and driving without a caravan are the increased vehicle width and length, a decreased acceleration and an increased vehicle stopping distance. Therefore, adapt your driving technique to the altered road behaviour resulting from driving with a caravan.

5.2 Brakes



- ▶ Have defects on the braking system immediately remedied by an authorised specialist workshop.

Before each journey

Before each journey, check by means of a braking test:

- Does the overrun brake function?
- Do the brakes react evenly?
- Do the towing vehicle and the caravan remain in the lane when braking?

5.3 Driving in reverse



- ▷ When driving in reverse, the caravan reacts in exactly the opposite direction to the steering movements of the towing vehicle. If you steer the towing vehicle to the left, the caravan moves to the right.
- ▷ Never back up without a second person to direct you.

As far as all models with an automatic reverse driving mechanism are concerned, the caravan can be reversed without difficulty. In addition to the rolling resistance, residual braking power must be taken into account.





Chapter overview

This chapter contains instructions on how to pitch the vehicle.

The instructions address the following topics:

- handbrake
- wheel chocks
- operation of the supports
- entrance step
- mobile waste water tank
- 240 V connection



- ▷ Pitch the vehicle so that it is as horizontal as possible. Secure the vehicle to prevent it from rolling.
- ▷ Animals (especially mice) can cause great damage to the interior of the vehicle. To prevent this from happening, regularly check the vehicle for damages or animal traces after pitching.

6.1 Handbrake

Firmly apply the handbrake when parking the vehicle.



- ▷ If there is any risk of frost, release the handbrake every now and then and apply it again. This will prevent it from freezing or rusting. Prior to releasing the handbrake, secure the vehicle so that it cannot roll away.

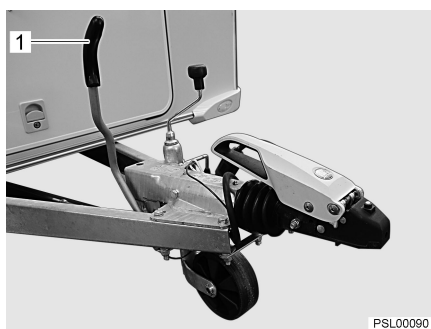


Fig. 6 Handbrake

To release it, push the handbrake (Fig. 6,1) forwards.



6.2 Wheel chocks

Use the two wheel chocks even when the upward or downward gradients are of a minimum. The wheel chocks are located in the gas bottle compartment.

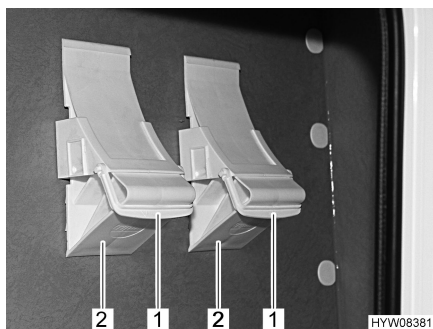


Fig. 7 Wheel chocks

Removal:

- Swivel the retaining clip (Fig. 7,1) upwards.
- Remove the wheel chock (Fig. 7,2) from the holder.

6.3 Corner steadies



- ▷ Do not use the fitted corner steadies as a vehicle jack. The corner steadies are only for stabilising the pitched vehicle. The vehicle wheels are not to be raised above the ground.
- ▷ When pitching the vehicle, ensure that the corner steadies are evenly loaded.
- ▷ Before driving away, wind up the corner steadies as far as they can go.



- ▷ When the ground is soft, place a pad or block under the supports in order to prevent the vehicle from sinking into the ground.

In order to stabilise the pitched caravan use the corner steadies fitted as standard.

With the assistance of the jockey wheel position the pitched caravan in a horizontal position. For control purposes use a small spirit level.

Crank down the corner steadies after the caravan is in an absolutely horizontal position.

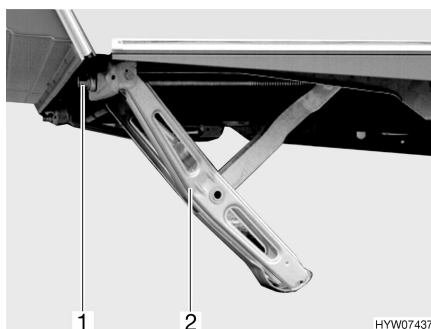


Fig. 8 Corner steady cranked down

Cranking down:

- Place the hand crank provided as standard on the hexagonal nut (Fig. 8,1) of the corner steady (Fig. 8,2).
- Rotate the hand crank in a clockwise direction. The corner steady is swung downwards.

Cranking upwards:

- Turn the crank handle in an anticlockwise direction. The corner steady is swung upwards.

6.4 Entrance step (free-standing)



- ▶ Make sure that the entrance step stands on secure and level ground. This will prevent the entrance step from toppling over.
- ▶ Do not step on the edges of the entrance step. Danger of slipping!
- ▶ Secure the entrance step to the ground, for example, with tent pegs. This way the entrance step cannot slip away.

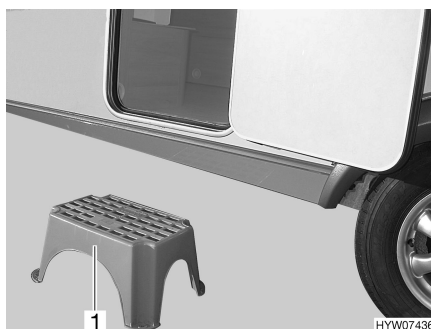


Fig. 9 Entrance step (free-standing)

- Place the entrance step (Fig. 9,1) in front of the entrance to the caravan.



6.5 Waste water tank, mobile

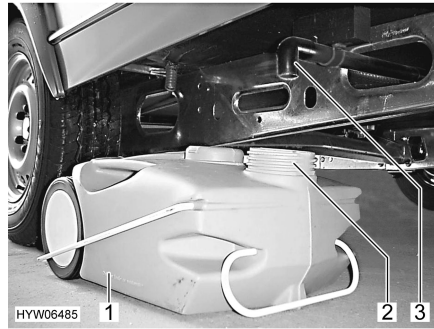


Fig. 10 Waste water tank, mobile

The waste water tank (Fig. 10,1) is stored inside the caravan gas bottle compartment during the journey. The drain pipe (Fig. 10,3) of the caravan is located at the bottom of the vehicle - on the left hand side in the direction of travel.

Before using the water system: Place the waste water tank under the caravan in such a way that the opening (Fig. 10,2) of the waste water tank is under the drain pipe.

6.6 240 V connection

The vehicle can be connected to a 240 V power supply (see chapter 9).



Chapter overview

This chapter contains instructions about living in the vehicle.

The instructions address the following topics:

- opening and closing the doors and external flaps
- heating the vehicle
- ventilation of the vehicle
- opening and closing the windows and blinds
- opening and closing the skylights
- converting tables
- adjusting the halogen spotlights
- use of the beds

7.1 Conversion door



- ▶ Only drive with locked doors.



- ▷ Locking the doors can prevent them from opening of their own accord, e.g. during an accident.
- ▷ Locked doors also prevent forced entry, e.g. when waiting at traffic lights.
- ▷ When leaving the vehicle, always lock the doors.

7.1.1 Conversion door, outside

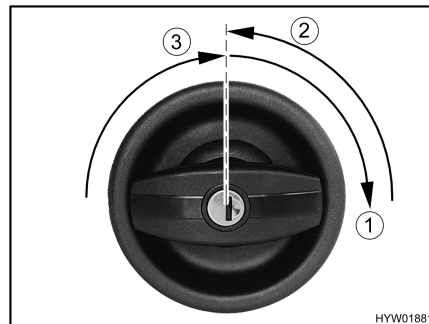


Fig. 11 Door lock of conversion door, outside, opening

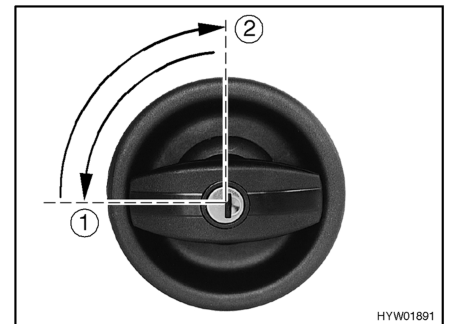


Fig. 12 Door lock of conversion door, outside, locking

Opening:

- Insert the key into locking cylinder and turn in a clockwise direction (Fig. 11,1) until the door lock is unlatched.
- Return the key to the central position (Fig. 11,2) and remove it.
- Turn the door knob in a clockwise direction (Fig. 11,3) until the door lock is unlatched.

Locking:

- Insert the key into locking cylinder and turn a quarter turn in an anticlockwise direction (Fig. 12,1).
- Return the key to the central position (Fig. 12,2) and remove it.



- ▷ For conversion doors with a left-hand opening, locking and opening is done in the reverse directions to those of the conversion door shown.



7.1.2 Conversion door, inside (handle)

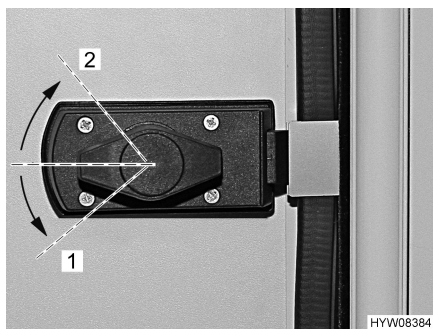


Fig. 13 Door lock of conversion door, inside

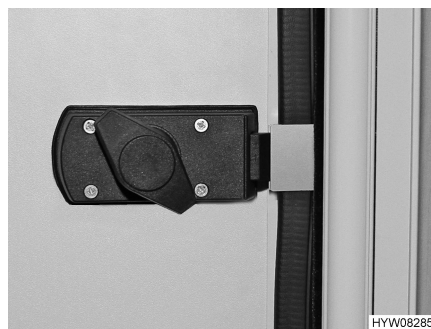


Fig. 14 Door lock of conversion door, inside, locked

Opening: ■ Turn the handle approx. 45° in a anticlockwise direction (Fig. 13,1).

Locking: ■ Turn the handle approx. 45° in a clockwise direction (Fig. 13,2) and leave in this position (Fig. 14).

7.1.3 Insect screen on the conversion door, extendable



▷ Open the insect screen completely before closing the conversion door.



Fig. 15 Insect screen

Closing: ■ Pull out the insect screen completely by the bar (Fig. 15,1).

Opening: ■ Push the insect screen into its initial position by the bar (Fig. 15,1).



7.2 External flaps



- ▷ Before commencing the journey, close all external flaps and lock them.
- ▷ To open and close the external flap, open or close all locks that are fitted to the external flap.



- ▷ When leaving the vehicle, close all external flaps.

The external flaps fitted to the vehicle are all fitted with identical locking cylinders. Therefore, all locks can be opened with a single key.

7.2.1 Flap lock, elliptical-shaped



- ▷ During rain, water can penetrate the opened flap lock. Therefore close the lock handle.

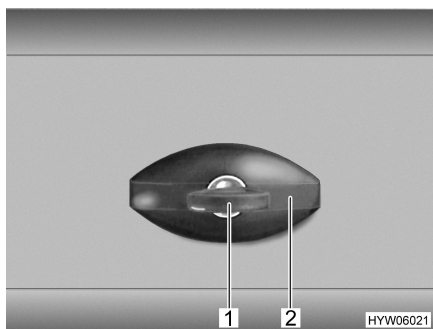


Fig. 16 Flap lock, elliptical-shaped, closed

Opening:

- Insert key into locking cylinder (Fig. 16,1) and turn a quarter turn in an anti-clockwise direction. The lock handle (Fig. 16,2) snaps out.
- Remove the key.
- Turn lock handle one quarter turn in an anticlockwise direction. The flap lock is open.

Closing:

- Firmly close the external flap.
- Turn lock handle in a clockwise direction until it is horizontal. The flap lock is now engaged but not locked.
- Insert key into locking cylinder.
- Press down lock handle with key inserted and turn key a quarter turn in a clockwise direction. The lock handle will stay bolted.
- Remove the key.



7.2.2 Flap lock with recessed handle

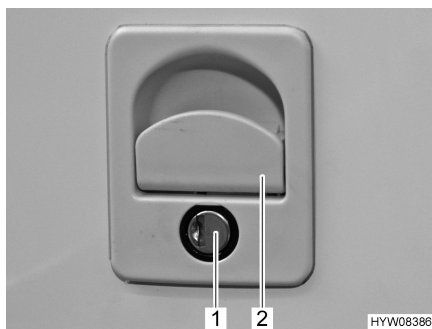


Fig. 17 Flap lock with recessed handle

- Opening:**
- Insert key into locking cylinder (Fig. 17,1) and turn a quarter turn in an anti-clockwise direction. The flap lock is unlatched.
 - Remove the key.
 - Pull on the lock handle (Fig. 17,2). The external flap is open.
- Closing:**
- Firmly close the external flap.
 - Insert key into locking cylinder and turn a quarter turn in a clockwise direction. The flap lock is locked.
 - Remove the key.

7.2.3 Flap for toilet cassette

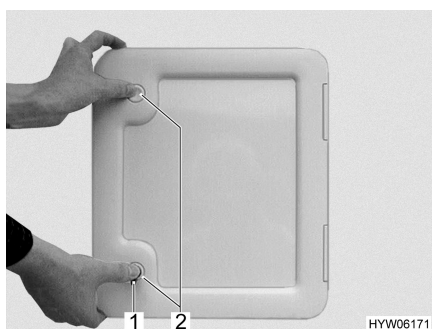


Fig. 18 Flap for toilet cassette

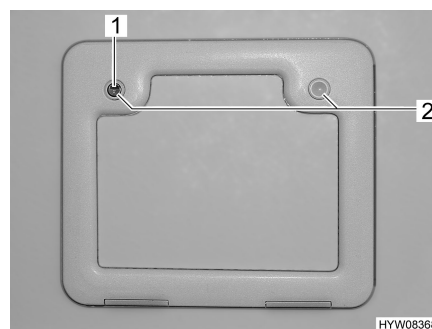


Fig. 19 Flap for toilet cassette (alternative)

- Opening:**
- Insert key into locking cylinder (Fig. 18,1 or Fig. 19,1) of the push-button lock and turn a quarter turn.
 - Remove the key.
 - Press both push-button locks (Fig. 18,2 or Fig. 19,2) simultaneously with your thumb and open the flap for the toilet cassette.
- Closing:**
- Close the flap for the toilet cassette and press it shut.
 - Insert key into locking cylinder (Fig. 18,1 or Fig. 19,1) and turn a quarter turn.
 - Remove the key.



7.3 Heating



- ▶ During heater operation, the exhaust gas pipe in the wardrobe will get hot. Therefore do not keep any heat-sensitive garments right next to the exhaust gas pipe (see also chapter 10).



- ▷ The operation of the heater is described in chapter 10.

7.4 Ventilation



- ▶ The oxygen in the vehicle interior is used up by breathing and the use of gas operated appliances. That is why the oxygen needs to be replaced on a constant basis. For this purpose, forced ventilation options (e.g. skylights with forced ventilation, mushroom-shaped vents or floor vents) are fitted to the vehicle. Never cover or block forced ventilations from the inside or outside with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves. There is a danger of suffocation due to increased CO₂ levels.



- ▷ Although sufficient ventilation is provided, in certain weather conditions, condensation can form on metal objects (e.g. screwed connections in the floor).
- ▷ Additional cold spots can occur at thermal "bridges" (e.g. lifting roof edges, mushroom-shaped vents, skylight edges, sockets, filler necks, flaps, etc.).

Condensation

Ensure that there is a continuous exchange of air by providing frequent and efficient ventilation. This is the only method for ensuring that condensation and resulting mould is not formed during cool weather. During the colder season, a pleasant living climate is created if heating output, air distribution and ventilation are synchronised.

If the vehicle is laid up for a longer period, occasionally ventilate it well, especially in summer as heat accumulation can occur. Do not only air the interior, but also the storage compartments which are accessible from the outside. Air the parking place as well if the vehicle is parked in a closed space (e.g. garage). The occurrence of condensation could lead to the formation of mould.

7.5 Windows



- ▶ The windows are fitted with a blind and an insect screen. After the latch has been released, the blind and insect screen automatically spring back to the initial position by tensile force. In order not to damage the tension mechanics, hold onto the blind or insect screen and allow it to slowly return to the initial position.
- ▶ Do not keep blinds closed over a longer period of time as that can cause increased material wear.
- ▶ If the blind is completely closed, exposure to direct sunlight can cause heat to accumulate between the blind and the glass window. The window could be damaged. For that reason, close the blind only 2/3 of the way in direct sunlight.
- ▶ Before commencing the journey, close the windows.



- ▷ Depending on the weather, close the windows far enough to prevent moisture from entering.
- ▷ To open and close the hinged window, open or close all catch levers which are fitted to the hinged window.



- ▷ When leaving the vehicle, always close the windows.
- ▷ In extreme weather conditions or if the temperature fluctuates strongly, a light condensation film can form on the double-glazed acrylic glass. The glass is designed in such a way that condensation can evaporate when the external temperature increases. There is no danger of the double-glazed acrylic glass being damaged by condensation.
- ▷ The upholstery will fade over time, if it is exposed to sunlight. If the temperature within the vehicle rises rapidly as well, the colour will change at an accelerated rate.
Therefore, we recommend to close the shades on the windows when there is strong sunlight. Ensure that heat does not build up when you close the blind.

7.5.1 Hinged window with automatic hinges



- ▷ Open the window completely, to release the lock. If the locking device is not released and the window is closed nevertheless, there is the danger of the window breaking due to the massive counter-pressure.
- ▷ When opening the hinged windows, ensure that there are no torsional forces. Open and close the hinged windows evenly.
- ▷ If the catch lever is equipped with a safety knob, press the safety knob when operating the catch lever.

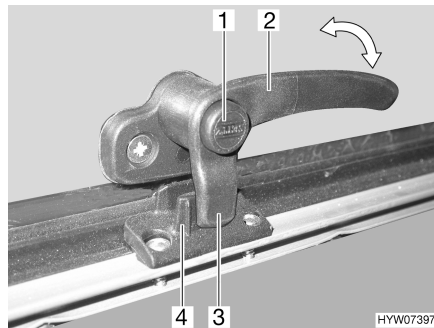


Fig. 20 Catch lever in "closed" position



Fig. 21 Hinged window with automatic hinges

Opening:

- Press the safety knob (Fig. 20,1) and keep it pressed.
- Turn the catch lever (Fig. 20,2) a quarter turn towards the centre of the window.
- Open the hinged window to the desired latched position. The automatic hinge (Fig. 21,1) locks in place automatically.

The hinged window remains locked in the required position.



- Closing:*
- Open the hinged window as wide as is necessary to release the lock.
 - Close the hinged window.
 - Press the safety knob (Fig. 20,1) and keep it pressed.
 - Turn the catch lever (Fig. 20,2) a quarter turn towards the window frame. The locking catch (Fig. 20,3) on the catch lever is entirely on the inner side of the window catch (Fig. 20,4).

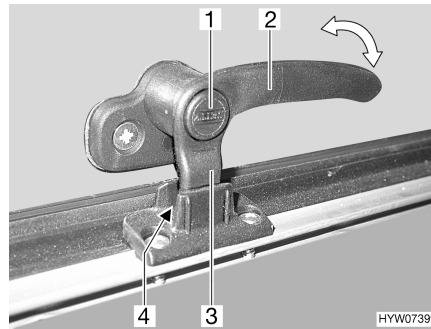


Fig. 22 Catch lever in the "continuous ventilation" position

Continuous ventilation

With the catch lever, the hinged window can be placed in two positions:

- "Continuous ventilation" (Fig. 22)
- "Firmly closed" (Fig. 20)

To place the hinged window into the "continuous ventilation" position:

- Press the safety knob (Fig. 22,1) and keep it pressed.
- Turn the catch lever (Fig. 22,3) a quarter turn towards the centre of the window.
- Lightly open the hinged window outwards.
- Return the catch lever to its initial position. Move the locking catch (Fig. 22,3) on the catch lever into the recess of the window catch (Fig. 22,4).
- Release the safety knob (Fig. 22,1).
- Make certain that the safety knob is not pushed in but rather that it secures the catch lever.

During the journey, the hinged window may not be in "continuous ventilation" position.

If it rains, the "continuous ventilation" hinged window position could lead to splashing water penetrating the living area. Therefore, close the hinged windows completely.



7.5.2 Blind and insect screen



- ▷ Open blinds before commencing the journey. When the blinds are closed, vibrations can damage the spring shaft.

The windows are fitted with a blind and an insect screen. The blind and insect screen are adjusted separately.

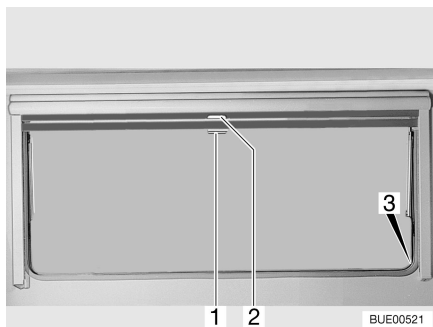


Fig. 23 Hinged window

Blind The blind is located in the upper blind box.

Closing:

- Pull blind at the handle (Fig. 23,2) downwards. If the blind is to be completely closed, it is suspended into the locking devices (Fig. 23,3) situated on both sides of the window frame.

Opening:

- If the blind is completely closed: Press handle (Fig. 23,2) downwards and, at the same time, tilt it slightly inward. The blind can be taken out of the locking devices situated on both sides of the window frame.
- If the blind is in an intermediate position: Pull the handle (Fig. 23,2) slightly downwards until the locking device releases.
- Use handle to return blind slowly to its initial position.

Insect screen The insect screen is located in the upper blind box.

Closing:

- Pull insect screen at the handle (Fig. 23,1) down and hang it into the locking devices (Fig. 23,3) situated on both sides of the window frame.

Opening:

- Press handle (Fig. 23,1) downwards and, at the same time, tilt it slightly inward. The insect screen can be taken out of the locking devices situated on both sides of the window frame.
- Use handle to return the insect screen slowly to its initial position.



- ▷ If necessary, the tensile force of the spring for the blind and insect screen can be re-adjusted (see chapter 13).



7.6 Skylights

Depending on the model, skylights with or without forced ventilation are fitted to the vehicle. If a skylight is fitted without forced ventilation, the forced ventilation is performed using mushroom-shaped vents.



- ▶ The apertures for forced ventilation must always be kept open. Never cover or block forced ventilations with objects such as e.g. a winter mat. Keep forced ventilations clear of snow and leaves.



- ▷ The skylights are fitted with a blind or Roman shade and with an insect screen or folding insect screen. After the latch has been released, the blind and insect screen automatically spring back to the initial position by tensile force. In order not to damage the tension mechanics, hold onto the blind or insect screen and allow it to slowly return to the initial position.
- ▷ Do not keep blinds closed over a longer period of time as that can cause increased material wear.
- ▷ If the blind or the Roman shade is completely closed, exposure to direct sunlight can cause heat to accumulate between the blind/the Roman shade and the skylight. The skylight could be damaged. For that reason, close the blind/Roman shade only 2/3 of the way in direct sunlight. Open the skylight slightly or move it to ventilation position.
- ▷ Depending on the weather, close the skylights far enough to prevent moisture from entering.
- ▷ Do not climb on the skylights.
- ▷ Before commencing the journey, close the skylights.
- ▷ Before commencing the journey, check that the skylights are closed and locked.



- ▷ When leaving the vehicle, always close the skylights.
- ▷ The upholstery will fade over time, if it is exposed to sunlight. If the temperature within the vehicle rises rapidly as well, the colour will change at an accelerated rate.
Therefore, we recommend closing the shades on the skylights of the parked vehicle by 2/3 when there is strong sunlight.



7.6.1 Skylight with snap latch

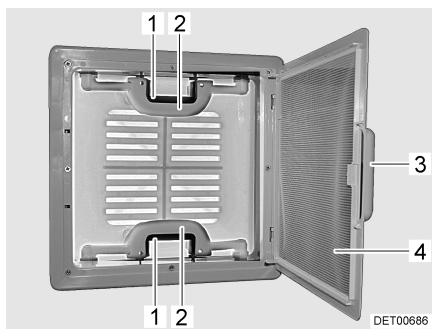


Fig. 24 Skylight with snap latch

The skylight can be pushed upwards either from one side or from both sides.

- Opening:**
- Pull on the handle (Fig. 24,3).
 - Fold insect screen (Fig. 24,4) downward.
 - Push the snap latch (Fig. 24,1) towards the inside of the skylight. At the same time use the handle (Fig. 24,2) to press the skylight upwards.
 - Swing insect screen (Fig. 24,4) upwards until it latches in place.
- Closing:**
- Pull on the handle (Fig. 24,3).
 - Fold insect screen (Fig. 24,4) downward.
 - Using both handles (Fig. 24,2), pull down the skylight with force until the two snap latches (Fig. 24,1) lock into place.
 - Swing insect screen (Fig. 24,4) upwards until it latches in place.

7.6.2 Heki skylight (mini and midi)

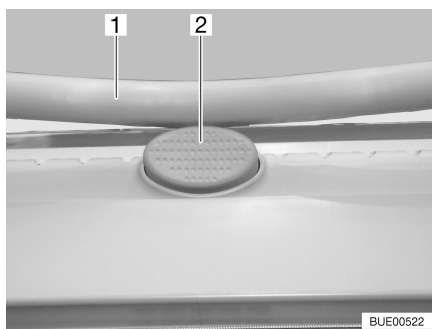


Fig. 25 Safety knob on the Heki skylight

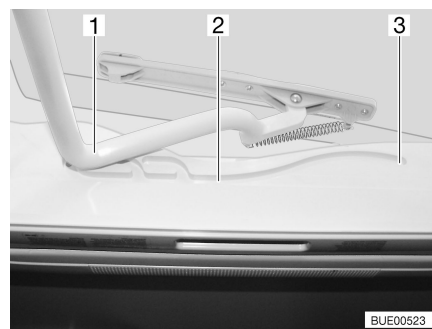


Fig. 26 Heki skylight, guide

The Heki skylight is opened on one side only.

- Opening:**
- Press the safety knob (Fig. 25,2) and pull the bar (Fig. 25,1) down with both hands.
 - Pull the bar (Fig. 26,1) in the guides (Fig. 26,2) to the rearmost position (Fig. 26,3).



- Closing:**
- Use both hands to push the bar (Fig. 26,1) slightly upwards.
 - Push the bar back in the guides.
 - Push the bar upwards with both hands until it is above the safety knob (Fig. 25,2).

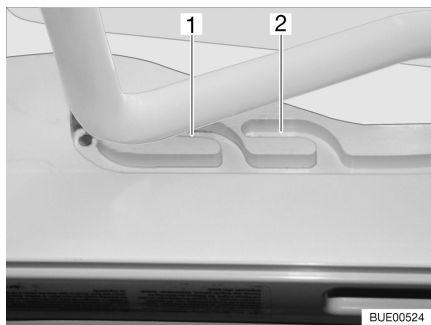


Fig. 27 Heki skylight in ventilation position

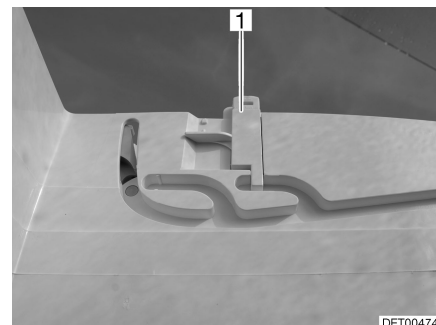


Fig. 28 Ventilation position locking mechanism

Ventilation position

The Heki skylight can be put in two ventilation positions: Bad weather position (Fig. 27,1) and central position (Fig. 27,2). Depending on the model, the skylight can be locked in the central position with both left and right latches (Fig. 28,1) on the skylight frame.

- Press the safety knob (Fig. 25,2) and pull the bar (Fig. 25,1) down with both hands.
- Pull the bar in the guides (Fig. 26,2) to the desired position.
- Push the bar slightly upwards and into the selected guide (Fig. 27,1 or 2) and lock if necessary.

Roman shade

To close and open the Roman shade:

- Closing:**
- Pull out Roman shade at the handle and release in the required position. The Roman shade will stay in that position.
- Opening:**
- Slowly push the Roman shade at the handle to its initial position.

Insect screen

To close and open the insect screen:

- Closing:**
- Pull the insect screen by the handle to the opposite handle of the Roman shade.
- Opening:**
- Press the rear part of the handle of the insect screen. The latch is released.
 - Use handle to return the insect screen slowly to its initial position.



7.7 Tables

7.7.1 Swivel table of the round seating group



- ▷ The swivel table is not secured to the floor. Before the journey, lower the swivel table and secure it to the benches using the straps provided.



Fig. 29 Swivel table of the round seating group

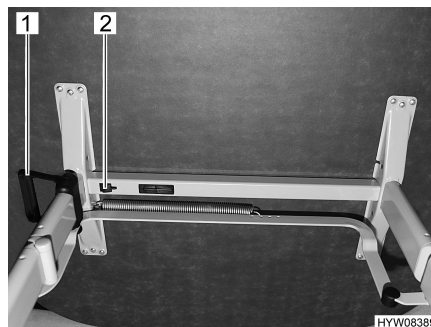


Fig. 30 Swivel table, lock (from below)

The swivel table's swivel mechanism enables it to be used as a bed foundation.

Conversion to bed foundation:

- Pull the handle (Fig. 29,2) upwards.
- Swivel the table-top (Fig. 29,1) down with a circular movement until the handle locks into place.

Restoring to table height:

- Pull the handle (Fig. 30,1) upwards and at the same time press on the locking mechanism (Fig. 30,2).
- Swivel the table-top upwards with a circular movement until the handle locks into place.



7.7.2 Suspension table with fold-out leg

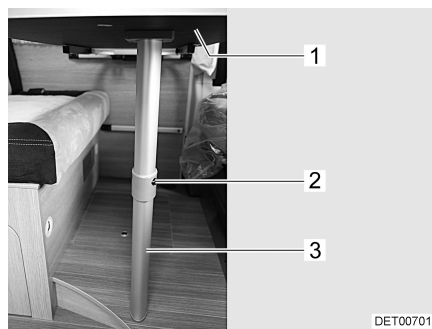


Fig. 31 Suspension table with fold-out leg

The suspension table may also be used as a bed foundation.

Conversion to bed foundation:

- Slightly raise the front of the table top (Fig. 31,1).
- Press the release knob (Fig. 31,2) and fold the lower part of the fold-out leg (Fig. 31,3) by 90°.
- Swivel the table top approx. 45° upward and remove the table from the retainer.
- Insert the table into the lower retainer and rest it on the table leg hinge.

7.8 Lamps



- ▶ Bulbs and light fittings can be extremely hot.
- ▶ Allow the light bulbs and lamp holders to cool down before touching them.
- ▶ If the light is switched on or still hot, there must always be a safety distance of at least 30 cm between stores or curtains and flammable objects. Fire hazard!

7.9 Bunk bed



- ▶ Only use the upper bunk bed, if the safety net is fitted.
- ▶ The maximum permitted bunk bed load is 80 kg.
- ▶ The upper bunk bed must not be used by children under 6 years of age.
- ▶ Never allow small children to remain in the bunk bed without supervision.
- ▶ But in particular with regard to small children less than 6 years of age, users should ensure that they cannot fall out of the bunk bed.
- ▶ Use separate children's beds or travel cots suitable for children.

Depending on the model, the vehicle is fitted with a bunk bed. The bunk bed can be used immediately, without additional conversion.

Always use the access ladder provided to climb up to the top bed.



7.10 Sleeping conversion



- ▷ Depending on the model, the seating group can be different in shape and position to the one shown here.
- ▷ Depending on the model, an enclosed additional cushion must be inserted between the seat cushions.

7.10.1 Central seating group, front seating group

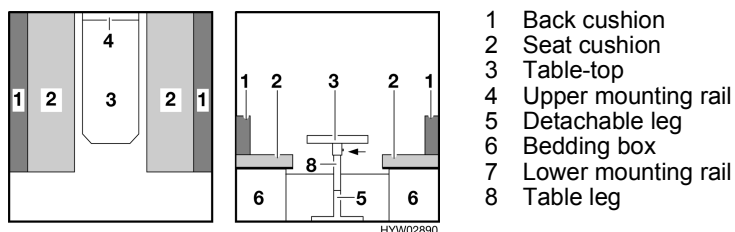


Fig. 32 Prior to conversion

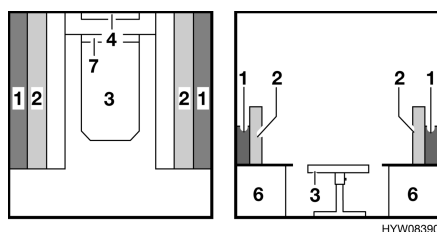


Fig. 33 During conversion

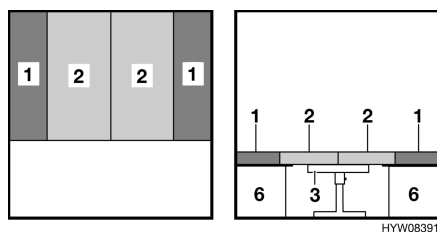


Fig. 34 After conversion

- Place the seat cushions (Fig. 32,2) in an upright position.
- Convert the table (Fig. 33,3) to a bed foundation (see section 7.7).
- Place the back cushions (Fig. 34,1) against the exterior wall. Observe the wedged form.
- Push the two seat cushions (Fig. 34,2) between the back cushions.



7.10.2 Round seating group

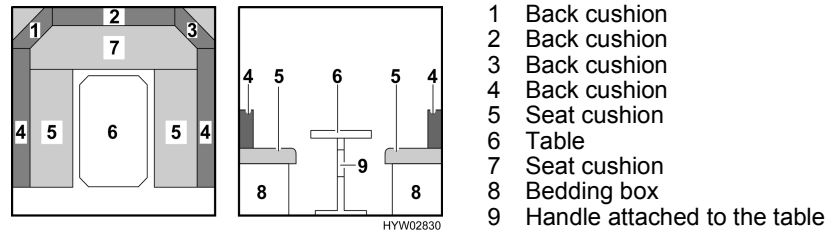


Fig. 35 Prior to conversion

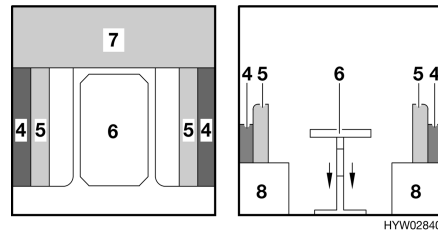


Fig. 36 During conversion

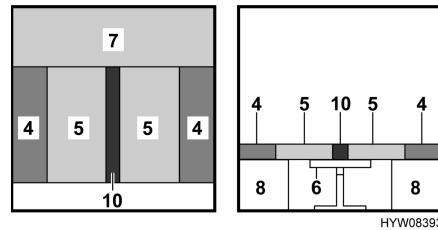


Fig. 37 After conversion

- Lay the back cushions (Fig. 35,1, Fig. 35,2 and Fig. 35,3) underneath the table.
- Place the seat cushions (Fig. 35,5) in an upright position.
- Convert the table (Fig. 36,3) to a bed foundation (see section 7.7).
- Place the back cushions (Fig. 37,4) against the exterior wall. Observe the wedged form.
- Insert the two seat cushions (Fig. 37,5) between the back cushions.
- Push the additional cushion (Fig. 37,10) between the seat cushions (Fig. 37,5).

7.10.3 Lying surface of rear single beds

Depending on the equipment, the single beds in the rear may be transformed into a continuous lying surface.

- Pull the width extension out of the console between the beds.
- Insert the supplied additional cushion.





Chapter overview

This chapter contains instructions regarding the gas system of the vehicle. The instructions address the following topics:

- safety
- gas consumption
- changing the gas bottles
- gas isolator taps

The operation of the gas operation appliances of the vehicle is described in chapter 10.

8.1 General



- ▶ Before commencing the journey, when leaving the vehicle or when gas equipment is not in use, close all gas isolator taps and the main isolator tap on the gas bottle.
- ▶ All gas-operated devices (heater, cooker, oven, grill, refrigerator - depending on the equipment) must be switched off for refuelling, on ferries or in the garage. Danger of explosion!
- ▶ Do not use gas-operated devices in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- ▶ Only have the gas system maintained, repaired or altered by an authorised specialist workshop.
- ▶ Have the gas system checked by an authorised specialist workshop according to the national regulations before commissioning. This also applies for not registered vehicles. For modifications to the gas system have the gas system immediately checked by an authorised specialist workshop.
- ▶ The gas pressure regulator and exhaust gas pipes must also be inspected. The gas pressure regulator has to be replaced after 10 years at the latest. The vehicle owner is responsible for seeing that this is carried out.
- ▶ In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- ▶ If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.). Do not check tightness of gas-conducting parts and pipes with an open flame.
- ▶ Only the stipulated devices may be connected to internal connections. Do not operate any device outside the vehicle if it is connected to an internal connector.
- ▶ Before using the cooker make sure that there is sufficient ventilation. Open windows or the skylight.
- ▶ Do not use the gas cooker or gas oven for heating purposes.
- ▶ If there are several gas devices, each gas device must have its own gas isolator tap. If individual gas devices are not in use, close the respective gas isolator tap.
- ▶ Ignition safety valves must close within 1 minute after the gas flame has extinguished. A clicking sound is audible. Check function from time to time.



- ▶ The built-in gas devices are exclusively meant for use with propane or butane gas or a mixture of both. The gas pressure regulator as well as all built-in gas devices are designed for a gas pressure of 30 mbar.
- ▶ Propane gas is capable of gasification up to -42 °C, whereas butane gas gasifies at 0 °C. Below these temperatures no gas pressure is available. Butane gas is unsuitable for use in winter.
- ▶ Regularly inspect the gas tube fitted to the gas bottle connection for tightness. The gas tube must not have any tears and must not be porous. Have the gas tube replaced by an authorised specialist workshop no later than ten years after the manufacturing date. The operator of the gas system must see to it that the parts are replaced.
- ▶ Due to its function and construction, the gas bottle compartment is a space which is open to the exterior. Never cover or block up the standard forced ventilations. Otherwise gas that is emitted can not be diverted to the outside.
- ▶ The gas bottle compartment must not be used as storage space.
- ▶ Secure the gas bottle compartment against unauthorised access. To do this, lock the compartment.
- ▶ The regulator tap on the gas bottle must be accessible.
- ▶ Only connect gas-operated devices (e.g. gas grill) which have been designed for a gas pressure of 30 mbar.
- ▶ The exhaust gas pipe must be fitted tightly to the heating system and to the vent and must be sealed. The exhaust gas pipe must not show any evidence of damage.
- ▶ Exhaust fumes must be able to escape into the atmosphere unhindered and fresh air must be able to enter unhindered. For this reason, keep the exhaust pipe and intake openings clean and unobstructed (e.g. free from snow and ice). For this reason, no snow walls or aprons may lie against the vehicle.

8.2 Gas bottles



- ▶ Gas bottles are only to be transported within the designated gas bottle compartment.
- ▶ Place the gas bottles in vertical position in the gas bottle compartment.
- ▶ Fasten the gas bottles so that they are unable to turn or tilt.
- ▶ Connect the gas tube to the gas bottle without tension.
- ▶ If the gas bottles are not connected to the gas tube, always place the protective cap on top.
- ▶ Close the regulator tap on the gas bottle before the gas pressure regulator or gas tube are removed from the gas bottle.
- ▶ The gas pressure regulator or the gas tube must only be secured with a suitable gas spanner (Do **not** overtighten).
- ▶ Only use special gas pressure regulators with a safety valve designed for vehicle use. Other gas pressure regulators are not permitted and cannot meet the demanding requirements.
- ▶ Use the gas pressure regulator defroster if the temperature falls below 5 °C.



- ▶ The designated gas bottle compartment will accommodate two gas bottles, i. e. Calor Gas Butane/Propane or Camping Gaz. All gas bottles **must** be fitted with the appropriate regulator.
- ▶ Use the shortest possible tube lengths (150 cm max.) for external gas bottles.
- ▶ Never block the floor ventilation openings below the gas bottles.



- ▷ For gas-operated units the gas pressure must be reduced to 30 mbar.
- ▷ Connect gas pressure regulator complete with safety valve directly to bottle valve.

The gas pressure regulator reduces the gas pressure in the gas bottle down to the operating pressure of the gas devices.

- ▷ For filling and connecting the gas bottles in Europe the accessories shops have corresponding Euro filling sets and Euro bottle sets.
- ▷ Information available at the dealers or service centre.

8.3 Gas consumption



- ▷ The data about gas consumption of the individual gas devices is standard average values.

Appliances	Gas consumption in grams/hour
Heater	Approx. 170 - 490 g/h
Cooker, per cooker	Approx. 140 - 165 g/h
Refrigerator	Approx. 18 g/h

8.4 Changing gas bottles



- ▶ When changing gas bottles, do not smoke or create any open fire.
- ▶ When you have changed the gas bottle, check whether gas escapes at the connection points and unions. Use a leakage search spray to spray the relevant connection point or union. These agents are available at the accessories shop.

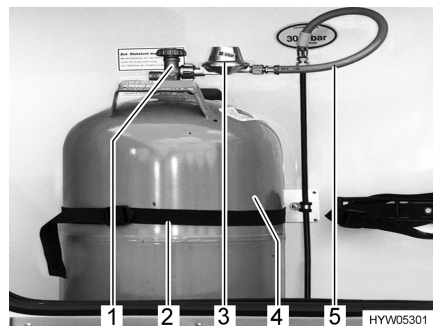


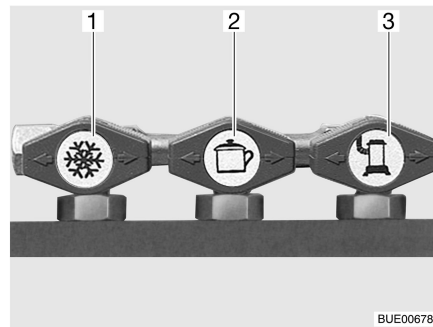
Fig. 38 Gas bottle compartment

- Open external gas bottle compartment (see chapter 7).
- Close the regulator tap (Fig. 38,1) on the gas bottle (Fig. 38,4). Pay attention to the direction of the arrow.



- Unscrew the gas pressure regulator (Fig. 38,3) along with the gas tube (Fig. 38,5) from the gas bottle with a suitable gas spanner.
- Release the fixing belts (Fig. 38,2) and take out the gas bottle.
- Place a filled gas bottle in the gas bottle compartment.
- Fix gas bottle in place with the fixing belts.
- Screw the gas pressure regulator with gas tube on the gas bottle and secure with a suitable gas spanner (Do **not** overtighten).

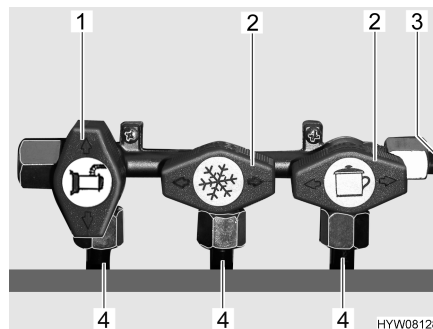
8.5 Gas isolator taps



- 1 Refrigerator
- 2 Cooker
- 3 Heater

Fig. 39 Symbols for the gas isolator taps

A gas isolator tap (Fig. 39) for every gas device is built into the vehicle. The gas isolator taps can be found under the cooker.



- 1 Gas isolator tap open
- 2 Gas isolator tap closed
- 3 Gas pipe
- 4 Pipe to the gas appliance

Fig. 40 Gas isolator taps position

- Opening:**
- Position the gas isolator tap of the corresponding appliance parallel (Fig. 40,1) to the pipe (Fig. 40,4) leading to the gas appliance.
- Closing:**
- Position the gas isolator tap of the corresponding appliance transverse (Fig. 40,2) to the pipe (Fig. 40,4) leading to the gas appliance.



Chapter overview

This chapter contains instructions regarding the electrical system of the caravan.

The instructions address the following topics:

- safety
- 12 V power supply
- power pack
- 240 V power supply
- connection to the 240 V power supply
- fuse rating
- towing vehicle connection
- electrical wiring

The operation of the electrical appliances of the housing body is described in chapter 10.

9.1 General safety instructions



- ▶ Only allow qualified personnel to work on the electrical system.

The vehicle is a safe place during a storm (Faraday cage). However, to protect the electrical devices, disconnect the 240 V connection and retract the antennae as a precaution.

9.2 12 V power supply



- ▷ If you use the battery of the towing vehicle to provide power for the caravan, bear in mind that the battery capacity is restricted. If you place too great a burden on the battery, this may lead to starting difficulties.
- ▷ Always disconnect the electrical connection between the towing vehicle and the caravan before the caravan is connected to the local power supply. In order to carry this out, disconnect the plug from towing vehicle socket.

When the caravan is not connected to the 240 V power supply, 12 V power supply is performed by the starter battery of the connected towing vehicle. The starter battery has a limited power supply only. For this reason, the electrical appliances should not be operated for a long time without using the 240 V power supply when the engine of the towing vehicle is switched off.



9.3 Power pack



Fig. 41 Power pack and 240 V automatic circuit breaker

The power pack (Fig. 41,3) is installed in the wardrobe.

The power pack is mounted next to the 230 V automatic circuit breaker (Fig. 41,1).

In the power pack, there are several fuses and the overload protection integrated underneath the cover.

Spare fuses (Fig. 41,2) and a tool to pull out the fuses more easily are located in the upper part of the power pack.

If the vehicle is **not** connected to the 240 V power supply, the requisite power supply is provided by the battery of the towing vehicle, as long as contact 9 "constant positive" is connected to the towing vehicle socket (see connection diagram at the end of this chapter). The 12 V living area lamps, the cassette toilet and the water pump can be used.

If the vehicle is connected to the 240 V power supply, the power pack switches the power supply in the living area automatically from the towing vehicle battery to mains operation.

The thermal cut-out in the power pack switches all 12 V appliances in the caravan off, if the power pack overheats. The power pack can overheat, if the ventilation apertures are covered by clothing or if many 12 V appliances are operated for a long time.

When the thermal cut-out has triggered, the power pack automatically switches back on after cooling down.

9.4 240 V power supply



- ▶ Only allow qualified personnel to work on the electrical system.
- ▶ Have the vehicle's electrical system checked by a qualified electrician at least once every 3 years. If the vehicle is used frequently, an annual check is recommended.

The 240 V power supply provides electricity for:

- sockets with earth contact for appliances with maximum 16 A
- refrigerator
- power pack

The electrical appliances connected to the 12 V power supply of the living area are supplied with voltage by the power pack.



9.4.1 240 V connection



- ▷ Overvoltage can damage connected devices. Overvoltage can be caused by lightning, irregular voltage sources (e.g. petrol-operated generators) or power connections on ferries for example.

Requirements concerning the 240 V connection

- The connecting cable, the plug connectors at the point of supply and the plug connector to the vehicle must comply with IEC 60309. The standard designation for the plug connectors is "CEE blue".
- Use H07RN-F rubber sheathed cable with a minimum cable cross-section of 2.5 mm² and a maximum length of 25 m.
- Earth contact connectors (safety) are not permitted. The interconnection of CEE/safety adapters is also prohibited.

9.4.2 Connecting 240 V power supply



- ▶ The external 240 V power supply must be protected by fuse with a fault current protection switch (FI-switch, 30 mA).
- ▶ To prevent overheating, the cable must be fully uncoiled from the cable reel.
- ▶ In case of doubt or if the 240 V supply is not available or is faulty, contact the operator of the power supply device.



- ▷ The 240 V connection in the vehicle is equipped with a fault current protection switch (FI-switch).
- ▷ For the connection points on camp sites (camping distributors) fault current protection switches (FI-switches, 30 mA) are obligatory.

The vehicle can be connected to an external 240 V power supply.

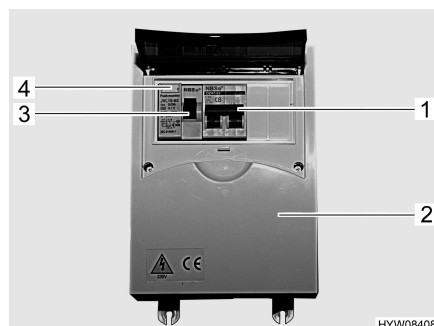


Fig. 42 240 V fuse box with safety cut-out and FI-switch



Fig. 43 240 V connection on vehicle

Connecting the vehicle:

- Check whether the power supply device is suitable regarding connection, voltage, frequency and current.
- Check whether the cables and connections are suitable.
- Check the plug connectors and cables for visible damage.
- Switch off the safety cut-out (Fig. 42,1) in the fuse box (Fig. 42,2).
- Open the cover of the 240 V connection on the vehicle (Fig. 43) and insert the plug connector. Ensure that the detent of the spring-mounted pivoting cover is engaged in position.



- Plug the connector of the connecting cable into the socket of the power supply device. Ensure that the detent of the spring-mounted pivoting cover is engaged in position.
- Switch on the safety cut-out in the fuse box.

Checking the fault current protection switch:

- When the vehicle is connected to the 240 V supply, press the check button (Fig. 42,4) of the fault current protection switch (FI switch) (Fig. 42,3) in the fuse box (Fig. 42,2). The fault current protection switch must trip.
- Switch the fault current protection switch back on again.

Unplugging the connection:

- Switch off the safety cut-out (Fig. 42,1) in the fuse box (Fig. 42,2).
- Loosen the detent on the power supply device and unplug the connection cable from the socket.
- Loosen the detent on the vehicle, unplug the plug connector and close the cover of the 240 V connection.

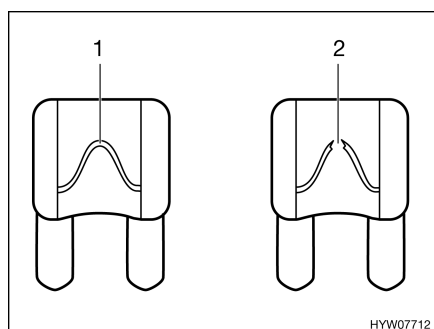
9.5 Fuses



- ▶ Only replace defective fuses when the cause of the defect is known and has been remedied.
- ▶ Replace defective fuses only after the power supply has been turned off.
- ▶ Never bridge or repair fuses.
- ▶ Only replace faulty fuses with a new fuse with the same rating.

9.5.1 12 V fuses

The appliances connected to the 12 V power supply in the living area are fused individually. The fuses are accessible at different positions in the vehicle. Exception: The refrigerator is supplied with energy by the towing vehicle via clamp 15 and consequently also is secured there (trailer socket contact 10).



- 1 Unbroken fuse element
- 2 Broken fuse element

Fig. 44 12 V fuse

An intact 12 V fuse can be detected by the unbroken fuse element (Fig. 44,1). If the fuse element is broken (Fig. 44,2), change the fuse.

Before changing fuses, take the function, value and colour of the relevant fuses from the following specifications. When changing fuses, only use flat fuses with the values shown below.



Fuses in the power pack

The fuse rating is dependent on the model. The fuses are located behind the cover (Fig. 45,1).

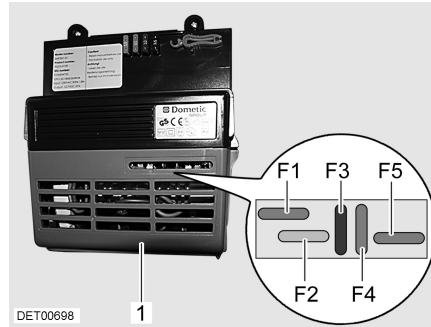


Fig. 45 Fuses in the power pack

Function	Fuse	Value/colour
Circuit 1, not used here	F1	15 A blue
Circuit 2, lighting kitchen, awning, refrigerator control	F2	10 A red
Circuit 3, water system	F3	7.5 A brown
Circuit 4, lighting bath, bed, awning	F4	15 A blue
Circuit 5, not used here	F5	15 A blue

Fuse for the Thetford toilet

The toilet has a maintenance-free fuse which resets automatically.

9.5.2 240 V fuse



- ▷ Check the fault current protection switch for each connection to the 240 V power supply, at least once every 6 months.



Fig. 46 240 V fuse box with safety cut-out and FI-switch

A fault current protection switch (FI-switch) in the fuse box protects the complete vehicle from fault current (0.03 A). A downstream safety cut-out (10 A) (Fig. 46,2) secures the 240 V power supply.

The fuse box can be found in the wardrobe.

Checking the fault current protection switch:

- When the vehicle is connected to the 240 V power supply, press the test button (Fig. 46,1). The fault current protection switch must trip.



9.6 Connection to the towing vehicle

9.6.1 Thirteen-pin plug connection diagram



- ▷ Note the colours of the connecting cable of the socket which is fitted to the towing vehicle. This makes any new connection which may be necessary easier.
- ▷ To connect the thirteen-pin plug to a seven-pin socket, use a commercially available adaptor.

Fig. 47 shows the following plugs:

- Plug side of the "Jaeger" socket system (left illustration)
- Plug side of the "Multikon" socket system (right illustration)

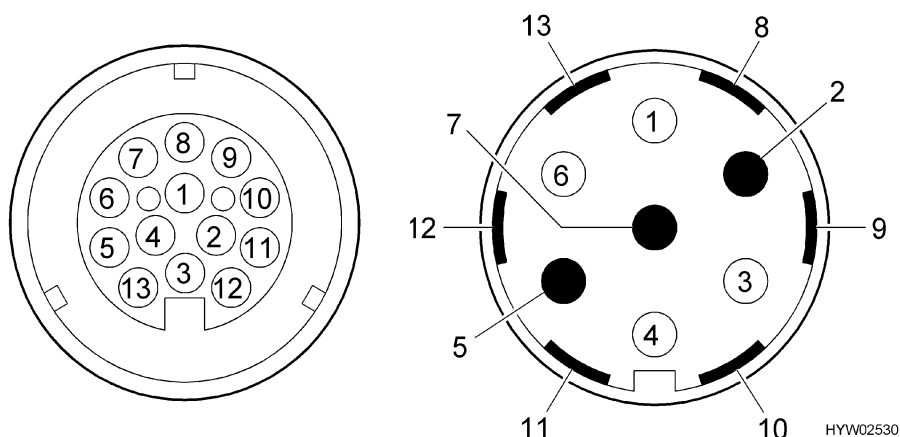


Fig. 47 Contact diagram of the thirteen-pin plug

Connection diagram

Contact number	DIN-specification	Function	Cable colour	Cross section of the wire
1	L	Left direction indicator	Yellow	1.5 mm ²
2	54 G	Fog tail light	Blue	1.5 mm ²
3 ¹⁾	31	Earth (contacts 1, 2, 4 - 8)	White	2.5 mm ²
4	R	Right direction indicator	Green	1.5 mm ²
5	58 R	Right tail light, side marker light, clearance light, marker light, licence plate light	Brown	1.5 mm ²
6	54	Brake lights	Red	1.5 mm ²
7	58 L	Left tail light, side marker light, clearance light, marker light, licence plate light	Black	1.5 mm ²
8		Reverse lamp and/or reverse equipment for overrun brake	Pink	1.5 mm ²
9		Power supply (constant positive)	Orange	2.5 mm ²
10		Power supply; controlled by the refrigerator ignition switch	Grey	2.5 mm ²



Contact number	DIN-specification	Function	Cable colour	Cross section of the wire
11 ¹⁾		Earth (contact 10)	White black	2.5 mm ²
12		Not assigned	—	—
13 ¹⁾		Earth (contact 9)	White red	2.5 mm ²

¹⁾ These earth cables may not be connected to electrical conductors on the trailer side.

9.6.2 Towing vehicle installation



- ▷ The towing vehicle must be retrofitted with the corresponding cable cross sections and a relay for the power supply (controlled using the ignition) (see Fig. 48).
- ▷ If the cable cross sections stipulated below are not adhered to, then it is possible that a correct charging of the living area battery during the journey is not possible.

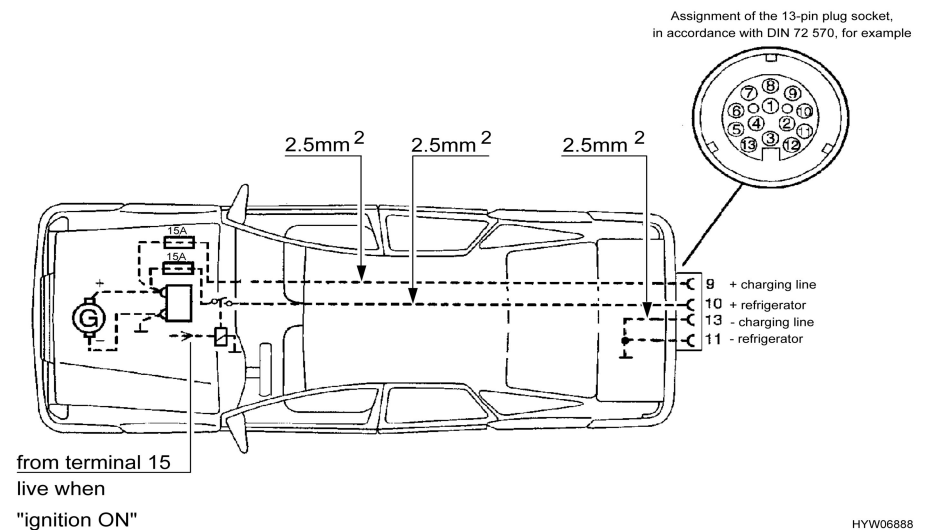


Fig. 48 Towing vehicle installation diagram

HYW06888



9.7 Circuit diagrams

9.7.1 Block diagram 240 V

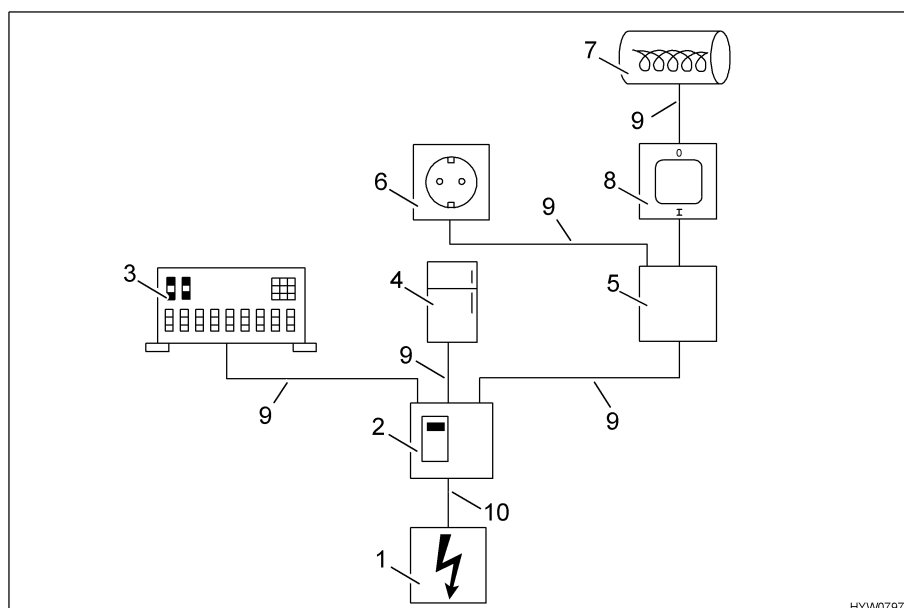


Fig. 49 240 V circuit diagram

- 1 240 V connection
- 2 240 V fuse box
- 3 Power supply unit
- 4 Refrigerator
- 5 Junction box
- 6 Sockets
- 7 Trumatherm
- 8 Switch for Trumatherm
- 9 H05VV-FG1,5²bu/bn/gnye
- 10 F3G2,5²

Fig. 49 shows a schematic diagram of the 240 V network.



9.7.2 Block diagram 12 V

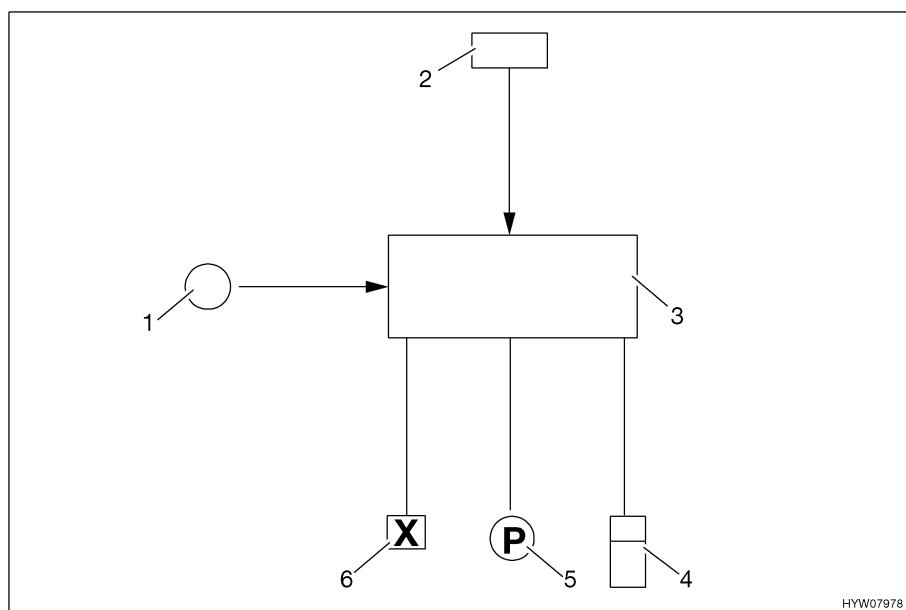


Fig. 50 12 V circuit diagram

- 1 Caravan coupling (contact 9, 10, 11 and 13)
- 2 240 V automatic circuit breaker
- 3 Power supply unit
- 4 Refrigerator
- 5 Water pump
- 6 Circuit 1 to 3

Fig. 50 shows a schematic diagram of the 12 V network.





Chapter overview

This chapter contains instructions regarding the appliances of the vehicle.

The instructions refer exclusively to the operation of the appliances.

Further information about the appliances can be found in the instruction manuals for the appliances, included separately with the vehicle.

The instructions address the following topics:

- heater
- hot water source
- gas cooker
- refrigerator

10.1 General



- ▷ The heat exchanger of the Truma hot-air heater has to be replaced after 30 years. Only the manufacturer of the heater or an authorised specialist workshop is allowed to replace the heat exchanger. The operator of the heater must see to it that the parts are replaced.
- ▷ For safety reasons, spare parts for pieces of heating appliances must correspond with manufacturer's instructions and be permitted by the manufacturer as a spare part. These spare parts may only be fitted by the manufacturer or an authorised specialist workshop.



- ▷ Further information can be obtained in the instruction manual for the respective appliance.

The heater, hot water source, cooker and refrigerator are fitted depending on the model of the vehicle.

In this instruction manual a description is given only for the operation of the appliances and their particular features.

To operate gas appliances, first open the regulator tap on the gas bottle and the gas isolator tap corresponding to the appliance.

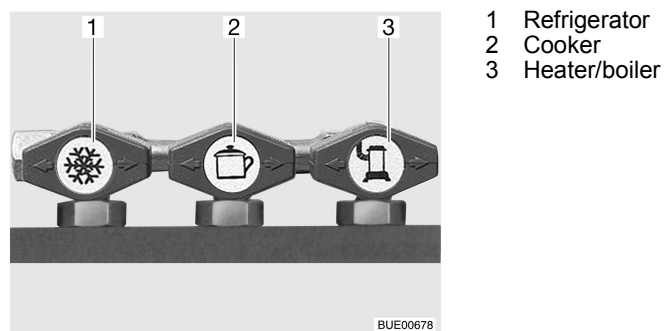


Fig. 51 Symbols for the gas isolator taps



10.2 Heater



- ▶ In winter, check that the waste gas vent on the vehicle roof is free of snow and ice before using the heater.
- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ Never run the heater in gas operation when refuelling, on ferries or in the garage. Danger of explosion!
- ▶ Never operate the heater in gas operation in closed spaces (e.g. garages). Danger of poisoning and suffocation!
- ▶ If the circulation fan does not activate automatically, switch the circulation fan on from heating level 3 to 4. There is danger of overheating for the heater!
- ▶ Do not damage the exhaust gas pipe.
- ▶ The waste gas vent may neither be closed nor blocked.
- ▶ When camping in winter, the Truma waste gas vent extension should be used to prevent snow from choking the waste gas vent.
- ▶ Do not use the space behind the heater as a storage compartment.

When lighting the heater for the first time a small amount of smoke and odour will occur. Immediately set the operating switch of the heater to its highest position. Open doors and windows and ventilate well. Smoke and odour will disappear by themselves after a while.

10.2.1 To heat properly



Fig. 52 Air outlet nozzle of the hot air distribution

Hot air distribution

Several air outlet nozzles (Fig. 52) are built into the vehicle. Pipes conduct the warm air to the air outlet nozzles. Turn the air outlet nozzles in a suitable position so the air can escape as required.

Adjusting the air outlet nozzles

- Fully open: Full hot air stream
- Half or partially open: Reduced hot air stream

When five air outlet nozzles are completely opened, less warm air escapes through each nozzle. However, if only three air outlet nozzles are opened, more warm air flows out of each nozzle.



10.2.2 Trumatic S 3004/S 5004 hot-air heater



► In case of problems wait for three minutes before trying again.



- ▷ The heater and fan can also be operated independently of each other. This means that the fan can also be used without the heater for air circulation.
- ▷ To ensure that warm air is distributed quickly and evenly, switch on the fan when the heater is in operation. This also reduces the surface temperature of the outlet grille.
- ▷ Type S 5004 is equipped with a second fan and has a greater output.

The heater is equipped with an adjustable fan and is controlled via a thermostat.

Depending on the model and equipment level, the type S 3004 or type S 5004 may be fitted.

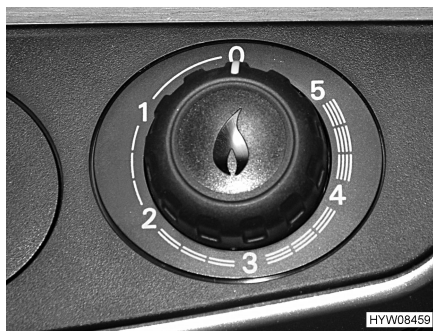


Fig. 53 Hot-air heater control knob

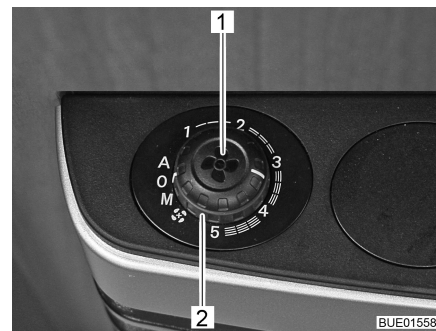


Fig. 54 Knob and rotary switch for fan control

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Heater".
- Turn control knob on the heater to the required position and press it firmly. The automatic ignition produces ignition sparks. A clicking noise can be heard.
- Keep the control knob pressed until the flame burns. The burning of the flame can be checked in the inspection window in the heater cover.
- Hold the control knob down for a further 10 seconds, until the ignition fuse starts up.




- ▷ The automatic ignition ignites until the gas is burning. If there is no gas, it will continue to spark until the battery in the automatic ignition is empty. When the heater is not required, set the control knob to "0" to avoid the battery in the automatic ignition running flat.
- ▷ If the clicking noise cannot be heard at all or only at intervals of several seconds during ignition: Change the battery in the automatic ignition.
- ▷ Insert a new batteries before the start of every heating season.



- Switching off:*
- Turn the control knob on the heater to "0". The automatic ignition is switched off simultaneously.
 - Close the gas isolator tap "Heater" and the regulator tap on the gas bottle.

Fan operating modes

Switch position	Operating mode	Function
A	Automatic	The required fan output is regulated electronically
M	Manual	The fan output is set manually using the knob (Fig. 54,1)
	Booster level	The fan works at maximum output (for maximum air flow)

- Switching on the fan:*
- Set the rotary switch (Fig. 54,2) to the required operating mode.

- Switching off the fan:*
- Turn the rotary switch (Fig. 54,2) to "0".

Automatic ignition

The automatic ignition ignites until the gas is burning or the battery in the automatic ignition is empty.

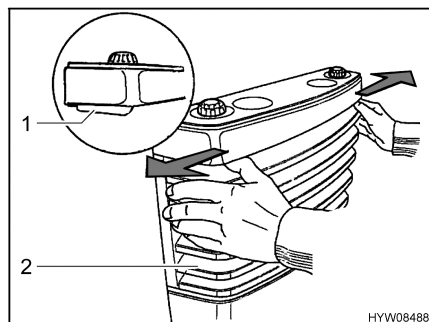


Fig. 55 Removing heater cover

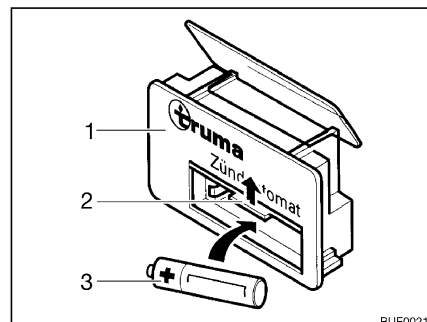


Fig. 56 Automatic ignition

Changing the battery on the automatic ignition:

- Ensure that the heater is switched off and cooled down.
- Remove heater cover (Fig. 55,2). To do this, press the two locking levers (Fig. 55,1) to the outside at the same time and tip the cover forwards.
- Lift the heater cover out of the bottom brackets and remove it.
- Push battery chamber cover (Fig. 56,2) on the automatic ignition (Fig. 56,1) upward.
- Remove the old battery out of the battery chamber of the automatic ignition.
- Insert a new battery (Fig. 56,3) of the same type, correctly aligned (+/-), into the battery chamber of the automatic ignition. Only use temperature resistant (+70 °C) and leak-proof Mignon batteries.
- Close the battery chamber cover on the automatic ignition.

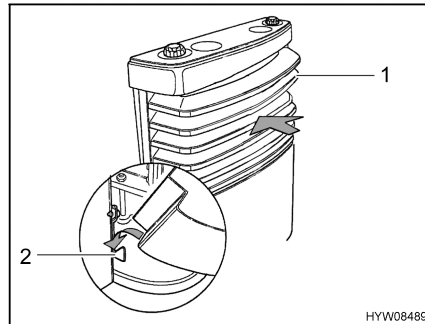


Fig. 57 Heater cover, lower brackets

- Mount the heater cover. To do this, place the heater cover (Fig. 57,1) on the lower brackets (Fig. 57,2).
- Swivel the heater cover onto the heater and allow the heater cover to engage at the top.



- ▷ Further information can be obtained in the manufacturer's instruction manual.

10.2.3 Circulation fan

The circulation fan together with the hot-air heater ensures a better distribution of hot air throughout the caravan.

A circulation fan for 240 V line voltage is built into the vehicle.



Fig. 58 Operating switch for circulation fan

Switching circulation fan on:

- Turn the rotary switch (Fig. 58,1) to "●".
- Turn the knob (Fig. 58,2) to the required position of the circulation fan.

Switching circulation fan off:

- Turn the rotary switch (Fig. 58,1) to "○".



- ▷ Further information can be obtained in the manufacturer's instruction manual.



10.3 Hot water source



- ▷ Never use the hot water source without water inside it.
- ▷ If the hot water source is not being used, empty it if there is any risk of frost.
- ▷ Switch off the hot water source and empty it if the vehicle is not used.
- ▷ Do not fit a check valve in the cold water pipe between the hot water source and the water pump.
- ▷ Use a pressure reducer when connecting to a central water supply or with strong pumps. The hot water source is designed only for pressures of up to 1.2 bar. In addition, insert a safety/drainage valve in to the cold water pipe.



- ▷ Do not use the water from the hot water source as drinking water.



Fig. 59 Operating switch for hot water source

The hot water source can either be operated using the 240 V power supply (electrical mode of operation), with the hot air of the heater system or both types of energy. The hot water source heats approx. 5 l water to a temperature of approx. 65 °C.

The electrical mode of operation is activated using the operating switch (Fig. 59,2). The indicator lamp (Fig. 59,1) on the switch must illuminate.

During hot air operation, the water in the hot water source is heated up by the heater and the circulating air.

Depending on the model, the vehicle is fitted with one or two hot water source drain cocks.

Switching on:

- Connect the vehicle to the external 240 V power supply and switch on the 240 V automatic circuit breaker.
- Switch on the operating switch (Fig. 59,2). Indicator lamp (Fig. 59,1) on the switch is illuminated. The water in the hot water source is heated up to 65 °C.

Switching off:

- Switch off the operating switch (Fig. 59,2). Indicator lamp (Fig. 59,1) on the switch goes off.

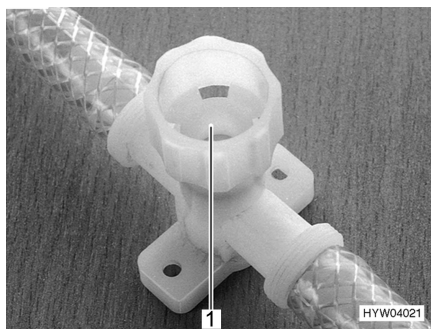


Fig. 60 Drain cock for hot water source

*Filling the hot water source
with water:*

- Connect the vehicle to the external 240 V power supply and switch on the 240 V automatic circuit breaker.
- Switch off the operating switch (Fig. 59,2). Indicator lamp (Fig. 59,1) in the switch is not on.
- Close all drain cocks. To do this, close the caps (Fig. 60,1) by turning them in a clockwise direction.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it. This is the only way to ensure that the hot water source is full of water.
- Close all water taps.

*Emptying the hot water
source:*

- Switch off the 240 V power supply on the 240 V automatic circuit breaker.
- Open the stopper of the water tank.
- Open all water taps and set to the central position.
- Hold the water pump up until the water pipes are completely empty.
- Open all drain cocks of the hot water source. To do this turn the caps (Fig. 60,1) in an anticlockwise direction.
- Check whether the water is completely drained from the hot water source.



- ▷ Further information can be obtained in the manufacturer's instruction manual.



10.4 Cooker



- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ Before using the cooker make sure that there is sufficient ventilation. Open windows or the skylight.
- ▶ Do not use gas cooker or gas oven for heating.
- ▶ Always protect your hands with cooking gloves or potholders when handling hot pots, pans and similar items. There is a risk of injury.

10.4.1 Gas cooker



- ▶ During activation and operation of the gas cooker, no flammable objects or highly inflammable objects such as dishcloths, napkins etc. must be near the gas cooker. Fire hazard!
- ▶ The process of ignition must be visible from above and must not be covered by cooking pans placed on the cooker.
- ▶ If there is a flame protection, always put it up when using the gas cooker.
- ▶ The gas cooker lid is held closed by a spring. When closing there is danger of getting injured!



- ▷ Do not use the glass gas cooker lid as a hob.
- ▷ Do not close the gas cooker lid while the gas cooker is in operation.
- ▷ Do not apply pressure on the gas cooker lid when it is closed.
- ▷ Do not place hot cooking pans on the gas cooker lid.
- ▷ Keep the gas cooker lid open after cooking until the burners are cool. Otherwise the glass plate could shatter.



- ▷ Only use pots and pans whose diameter is appropriate for the gas cooker burners.
- ▷ When the flame goes out, the thermocouple automatically cuts the gas supply.
- ▷ Further information can be obtained in the manufacturer's instruction manual.

The vehicle kitchen unit is fitted with a three-burner gas cooker.

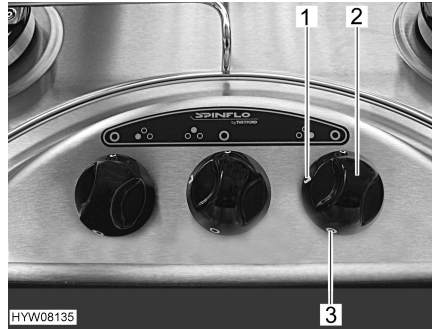


Fig. 61 Operating controls for gas cooker

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Cooker".
- Open the gas cooker lid.
- Depending on the model, fold out or set up the flame protection.
- Turn the control knob (Fig. 61,2) on the burner you wish to use to the ignition position (large flame, Fig. 61,1).
- Press the control knob down and hold it.
- Light the burner with a gas lighter, a match or other suitable means of lighting.
- Once the flame is burning, the control knob must be held down for 10 to 15 seconds, until the thermocouple automatically keeps the gas supply open.
- Release the control knob and turn to the desired setting.
- If ignition is unsuccessful, repeat the entire procedure.

Switching off:

- Turn the control knob to the 0-position (Fig. 61,3). The flame fades.
- Close the gas isolator tap "Cooker" and the regulator tap on the gas bottle.



10.5 Refrigerator

During the journey, only operate the refrigerator via the 12 V power supply. At high ambient temperatures the refrigerator is unable to reach its full cooling power. At high external temperatures, the full cooling power of the cooling unit is only guaranteed if the refrigerator is ventilated sufficiently. In order to achieve a better ventilation the refrigerator ventilation grill can be removed.



- ▷ When leaving the vehicle, always mount the refrigerator ventilation grill. Otherwise water can enter during rain.

10.5.1 Refrigerator ventilation grill

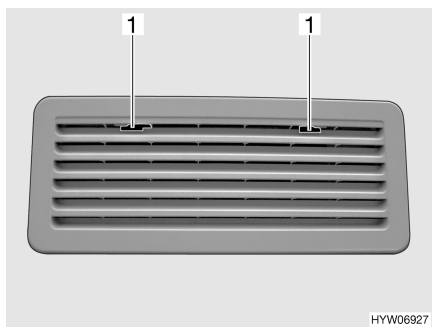


Fig. 62 Refrigerator ventilation grill (Thetford)

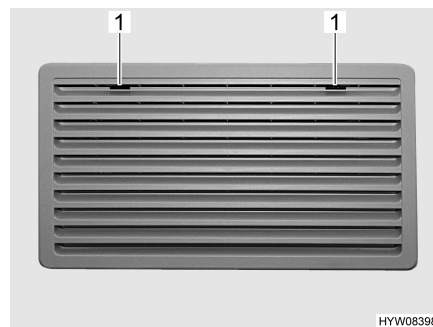


Fig. 63 Refrigerator ventilation grill, large (Thetford)

- Removal:**
- Move the locking device (Fig. 62,1 or Fig. 63,1) to the middle.
 - Remove refrigerator ventilation grill.

10.5.2 Operation (Thetford)

Operating modes

The refrigerator has 3 operating modes:

- Gas operation
- 240 V operation
- 12 V operation

The operating mode is set with the operating controls on the refrigerator panel. Infinitely variable regulation of the cooling power is only possible with gas operation and when the refrigerator is operated with 240 V. It is not possible with 12 V operation.



- ▷ Select only one energy source.

Gas operation



- ▶ Never let gas escape unburned due to danger of explosion.
- ▶ It is not permitted to operate the refrigerator with car gas.

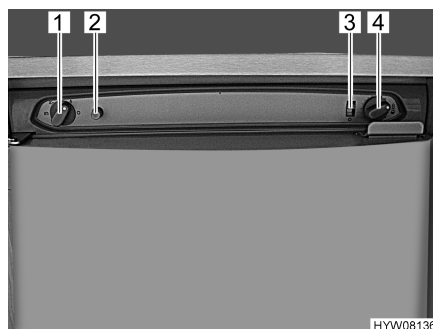


Fig. 64 Operating controls for the refrigerator

- 1 Energy selector switch
- 2 Lighting knob
- 3 Flame indicator
- 4 Control knob

Switching on:

- Open the regulator tap on the gas bottle and the gas isolator tap "Refrigerator".
- Set energy selector switch (Fig. 64,1) to gas "🔥".
- Set the control knob (Fig. 64,4) to highest level, press and hold in. Gas supply is open.
- Press lighting knob (Fig. 64,2) several times with pauses of 1 to 2 seconds.
- Keep the control knob pressed down until the flame indicator (Fig. 64,3) becomes green and then release it. If the flame goes out, repeat ignition procedure.
- Use the control knob (Fig. 64,4) to adjust the refrigerating temperature.

Switching off:

- Set the energy selector switch (Fig. 64,1) to "0". The appliance is switched off.
- Turn control knob (Fig. 64,4) to "0".
- Close the gas isolator tap "Refrigerator" and the regulator tap on the gas bottle.

Electrical operation



- ▷ Close the gas isolator tap "Refrigerator" when the refrigerator is operated electrically.

The refrigerator can be operated with the following voltages:

- 240 V AC
- 12 V DC

Switching the 240 V operation on:

- Set energy selector switch (Fig. 64,1) to 240 V operation "⏻".
- Use the control knob (Fig. 64,4) to adjust the refrigerating temperature.

Switching the 240 V operation off:

- Set energy selector switch to "0". Refrigerator is switched off.

Switching the 12 V operation on:

- Set energy selector switch (Fig. 64,1) to 12 V operation "⏻".

Switching the 12 V operation off:

- Set energy selector switch to "0". Refrigerator is switched off.



When operated with 12 V, the refrigerator draws power from the starter battery of the towing vehicle. Therefore, 12 V operation of the refrigerator is only possible if the alternator signal D+ is present. During prolonged driving breaks, always change over to gas operation.

The thermostat is not activated during 12 V operation. The refrigerator operates continuously.



- ▷ Further information can be obtained in the manufacturer's instruction manual.

10.5.3 Refrigerator door locking mechanism



- ▷ During the journey the refrigerator door must always be closed and locked in the closed position.



- ▷ Lock the refrigerator door in ventilation position when the refrigerator is switched off. This prevents mould forming.

There are two positions for locking the refrigerator door in place:

- Closed refrigerator door during travel and when the refrigerator is in operation
- Slightly opened refrigerator door as a ventilation position when the refrigerator is switched off

Thetford

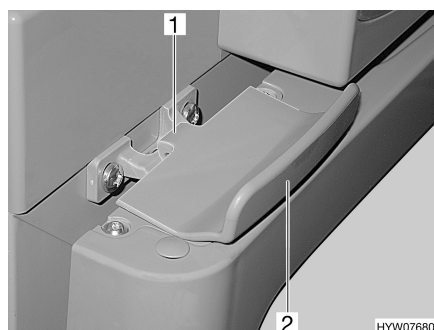


Fig. 65 Lock of refrigerator door, closed (Thetford)

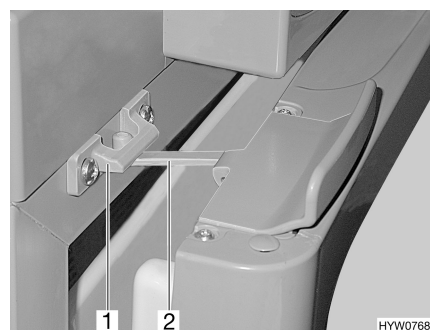


Fig. 66 Refrigerator door in ventilation position (Thetford)

- Opening:**
- Open the refrigerator door at the handle (Fig. 65,2). The lock (Fig. 65,1) is released automatically.

- Closing:**
- Fully close the refrigerator door. Ensure that the lock is engaged.

- Locking in the ventilation position:**
- Slightly open refrigerator door.
 - Open the lock (Fig. 66,2) and snap it into the locking catch (Fig. 66,1). The refrigerator door will then stay slightly open.



Chapter overview

This chapter contains instructions regarding the sanitary fittings of the caravan.

The instructions address the following topics:

- water canister or water tank
- complete water system
- mobile waste water tank
- toilet compartment
- toilet

11.1 Water supply, general



- ▶ Fill water canister or water tank from supply systems that have been verified to provide drinking water quality.
- ▶ Only use such hoses or containers when filling that have been approved for use with drinking water.
- ▶ Thoroughly rinse filling hose or container with drinking water before use (2 to 3 times capacity).
- ▶ Empty filling hose or container completely after use and close openings of the filling hose or container.
- ▶ Water left standing in the water canister, in the water tank or in the water pipes becomes undrinkable after a short period. Therefore, before each use of the vehicle, thoroughly clean the water pipes and the water canister or the water tank. After each use of the vehicle completely empty the water canister or the water tank and the water pipes.
- ▶ In the case of lay-ups lasting more than a week disinfect the water system before using the vehicle (see chapter 12).



- ▷ If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Make sure that the 12 V power supply on the panel is switched off. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and all drain cocks open. Frost damage to appliances, frost damage to the vehicle and deposits in water-carrying components can be avoided in this way.
- ▷ The water pump will overheat without water and can get damaged. Never operate water pump when the water canister or the water tank is empty.

The vehicle is equipped with a water canister or a built-in water tank. An electric water pump pumps the water to the individual water taps. Opening a water tap automatically switches on the water pump and pumps water to the tap.

A canister or a waste water tank collects the waste water.



- ▷ Before using the water fittings: Connect the 240 V power supply and switch on the 240 V automatic circuit breaker, or connect the caravans electrics to the towing vehicle. Otherwise the water pump will not work. (This only applies to caravans that are not equipped with a separate battery.)
- ▷ When the water canister or the water tank is re-filled, an air bubble may form at the bottom of the pump. This air bubble will prevent water from being drawn in. Shake the water pump up and down energetically in the water.



11.2 Water canister

The water canister is built into the seating group or the bedding box.
The water canister holds 12 l.

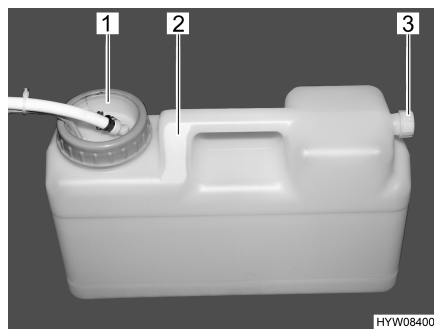


Fig. 67 Water canister for drinking water

The water canister can be easily removed for filling.

Filling the water canister:

- Unscrew the cap with the pump (Fig. 67,1). Screw the closed cap onto the canister.
- Release the fixing belts and take out the water canister (Fig. 67,2).
- Fill the canister with drinking water. The venting cap (Fig. 67,3) can be undone for venting.
- Place the full canister into its installation position and secure in place.
- Remove the closed cap and screw the cap with the pump (Fig. 67,1) onto the canister in its place.

11.3 Water tank

The water tank is built into the seating group or the bedding box.
The water tank holds 45 l.

11.3.1 Drinking water filler neck with cap



Fig. 68 Cap for the drinking water filler neck

The drinking water filler neck is on the right or left side of the vehicle, depending on the model.

The drinking water filler neck is indicated by the symbol "⌚" (Fig. 68,1). The cap is opened and closed using the key for the external flap locks.



- Opening:*
- Insert key into locking cylinder (Fig. 68,2) and turn a quarter turn in an anti-clockwise direction.
 - Remove the cap.
 - Fill the water tank with drinking water.

- Closing:*
- Place the cap on the drinking water filler neck.
 - Turn key one quarter turn in a clockwise direction.
 - Remove the key.
 - Check that the cap sits firmly on the drinking water filler neck.

11.3.2 Filling with water



- When filling the water tank, observe the maximum permissible gross weight of the vehicle. Luggage must be reduced accordingly when the water tank is full.

- Open drinking water filler neck.
- Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.
- Close drinking water filler neck.

11.3.3 Draining water (stopper)

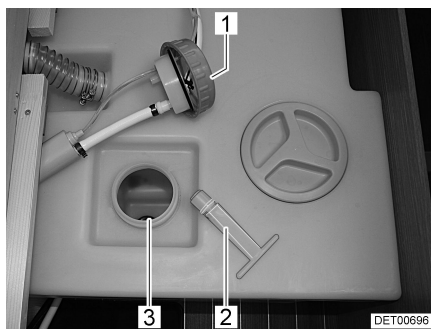


Fig. 69 Water tank

- Unscrew the cap (Fig. 69,1) with water pump from the water tank.
- Remove the stopper (Fig. 69,2) from the drainage opening (Fig. 69,3). The water will drain.
- Screw the cap back on the water tank.



11.4 Filling the water system



- ▶ When filling the water tank, observe the maximum permissible gross weight of the vehicle. Luggage must be reduced accordingly when the water tank is full.



- ▷ The water pump will overheat without water and can get damaged. Never operate water pump when the water canister or the water tank is empty.

Models with water canister

With models with water canister, fill the water system as follows:

- Position the vehicle horizontally.
- Clean or disinfect water system.
- Loosen retaining straps at the water canister.
- Unscrew the cap of the water canister.
- Remove water pump and water hose from the water canister.
- Replenish drinking water.
- Place water pump in the water canister and close the cap tightly.
- Secure water canister with retaining strap.
- Connect the 240 V power supply and switch on the 240 V automatic circuit breaker.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Set all water taps to "Cold" and leave them open. This will fill the cold water pipes with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it.
- Close all water taps.



Models with water tank

With models with water tank, fill the water system as follows:

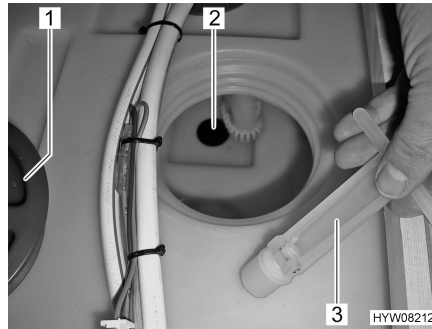


Fig. 70 Water tank, stopper

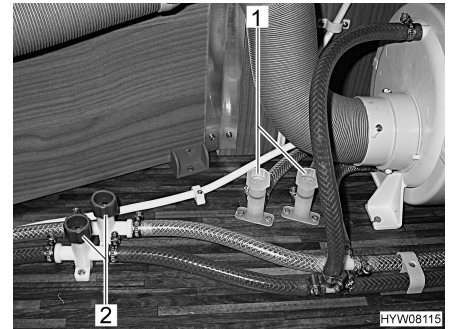


Fig. 71 Hot water source drain cocks

- Position the vehicle horizontally.
- Connect the 240 V power supply and switch on the 240 V fuse box.
- Clean or disinfect water system.
- Switch off the operating switch for the hot water source. The red indicator lamp is not lit.
- Close all drain cocks. To do this, close the caps (Fig. 71,1 and 2) by turning them in a clockwise direction.
- Close all water taps.
- Unscrew the cap (Fig. 70,1) on the water tank.
- Put the stopper (Fig. 70,3) in the drainage opening (Fig. 70,2).
- Screw the cap back on the water tank.
- Open the drinking water filler neck on the outside of the vehicle.
- Fill the water tank with drinking water. Use a water hose, a water canister with a funnel or similar for filling.
- Set all the water taps to "Hot" and open them. The water pump is turned on. The warm water pipes are filled with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it. This is the only way to ensure that the boiler is full of water.
- Set all water taps to "Cold" and leave them open. This will fill the cold water pipes with water.
- Keep the taps open until the water flowing out of the taps has no bubbles in it.
- Close all water taps.
- Close the drinking water filler neck.
- Check that the cap on the water tank is not leaking.



11.5 Emptying the water system



- ▷ If the vehicle is not used for several days or if it is not heated when there is a risk of frost, empty the entire water system. Make sure that the 12 V power supply on the main switch is switched off. Otherwise, the water pump will overheat and may get damaged. Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and all drain cocks open. Frost damage to appliances, frost damage to the vehicle and deposits in water-carrying components can be avoided in this way.



- ▷ Take note of the environmental tip in this chapter.

To empty and ventilate the water system, proceed as follows. This prevents frost damage and deposits:

- Position the vehicle horizontally.
- Switch off the 240 V power supply on the 240 V fuse box.
- Switch off the hot water source. The indicator lamp "Operation" will go off.
- Open all drain cocks. To do this turn the caps in an anticlockwise direction.
- Unscrew the cap of the water tank.
- Remove water pump and water hose from the water tank.
- Take out the stopper of the water tank.
- Open all water taps and set to the central position.
- Hold the water pump up until the water pipes are completely empty.
- Check whether the water tank is completely empty.
- Blow out the remaining water in the water pipes (max. 0.5 bar). To do this, remove the water pipe from the water pump and blow into the water pipe.
- Empty the waste water tank. Take note of the environmental tips in this chapter.
- Empty the sewage tank. Take note of the environmental tips in this chapter.
- Clean the water tank and then rinse it out thoroughly.
- Let the water system dry for as long as possible.
- After emptying, leave all water taps on in the central position.
- Leave all drain cocks open.



11.6 Waste water tank



- ▶ Before commencing the journey, empty the waste water tank.



- ▷ If there is any risk of frost, empty the waste water tank.
- ▷ Never pour boiling water directly into the sink outlet. Boiling water could cause deformation and leaks in the waste water pipe system.



- ▷ Only empty the waste water tank at disposal stations, camping sites or caravan sites especially provided for this purpose.

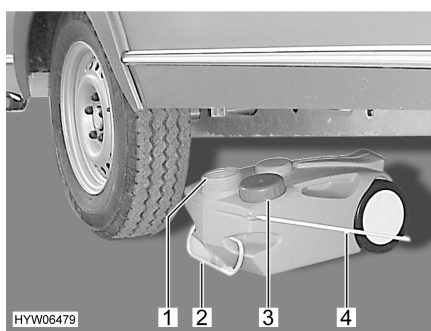


Fig. 72 Waste water tank, mobile

Emptying:

- Use the cap (Fig. 72,3) to close the opening of the waste water tank (Fig. 72,1).
- Use the handle (Fig. 72,2) to pull out the waste water tank.
- Fold the carrying handle (Fig. 72,4) up and upright the waste water tank.
- Completely empty the waste water tank at disposal stations that are especially provided for this purpose.
- Place the waste water tank underneath the drain pipe or (for the journey) store it in the gas bottle compartment.

11.7 Toilet compartment



- ▷ Do not transport any loads in the toilet compartment tray. The tray or other items of equipment in the toilet compartment can be damaged.



11.8 Toilet

11.8.1 Thetford toilet



- ▷ If there is any risk of frost and the vehicle is not heated, empty the Thetford cassette.
- ▷ Do not sit on the lid of the toilet. The lid is not designed to bear the weight of a person and could break.
- ▷ Use a suitable chemical for this toilet. The ventilation will merely remove the odour but not germs and gases. Germs and gases will have a detrimental effect on the sealing rubbers.



- ▷ Further information can be obtained in the manufacturer's instruction manual.



- ▷ Only empty the Thetford cassette at disposal stations, at camping sites or caravan sites, that are especially provided for this purpose.

Swivel toilet

The flushing of the Thetford toilet is fed directly from the water system of the vehicle. The toilet bowl can be moved into the optimal position.



Fig. 73 Thetford toilet bowl, swivelling

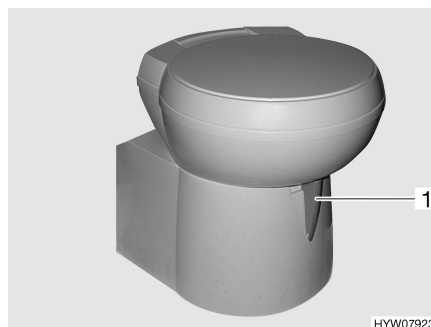


Fig. 74 Thetford toilet bowl, swivelling (alternative)

The operating unit is located close to the toilet bowl.

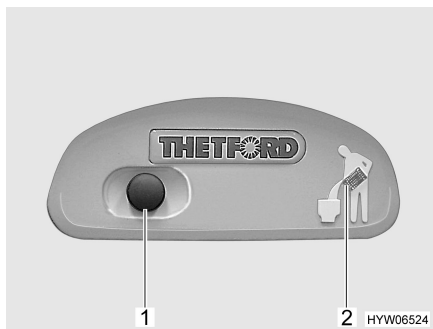


Fig. 75 Flush button/indicator lamp Thetford toilet

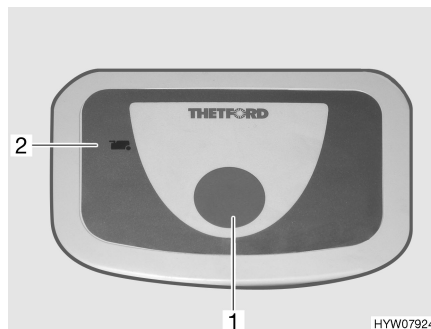


Fig. 76 Flush button/indicator lamp Thetford toilet (alternative)

Flushing:

- Before flushing open the sliding trap of the Thetford toilet. To do this, push the slide lever (Fig. 73,1 or Fig. 74,1) in an anticlockwise direction.
- For flushing, press the blue flush button (Fig. 75,1 or Fig. 76,1).
- After flushing close the sliding trap. To do this push the slide lever in a clockwise direction.



The indicator lamp (Fig. 75,2 or Fig. 76,2) goes on whenever the sewage tank has to be emptied.

Emptying:

- Turn the slide lever (Fig. 73,1 or Fig. 74,1) in a clockwise direction. The sliding trap is closed. To empty, the sliding trap in the Thetford toilet **must** be closed.
- Remove and empty the Thetford cassette.

11.8.2 Emptying the sewage tank



▷ The sewage tank can only be taken out if the sliding trap is closed.

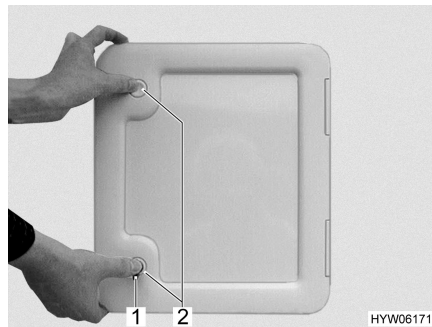


Fig. 77 Flap for the sewage tank

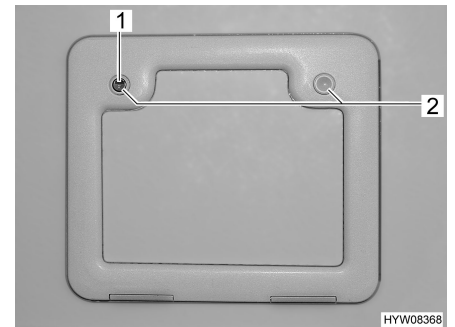


Fig. 78 Flap for the sewage tank (alternative)

- Slide the slide lever on the toilet bowl in a clockwise direction. The sliding trap is closed.
- Open the flap for the sewage tank on the outside of the vehicle. Insert the key into the locking cylinder of the push-button lock (Fig. 77,1) and turn a quarter turn in a clockwise direction.
- Remove the key.
- Press both push-button locks (Fig. 77,2) simultaneously with your thumb and open the flap for the sewage tank.



Fig. 79 Sewage tank



Fig. 80 Sewage tank (alternative)

- Pull the retaining clip (Fig. 79,1) upwards and pull out the sewage tank (Fig. 79,2).
- Completely empty the sewage tank at disposal stations that are especially provided for this purpose.



- ▷ Actuate the aeration knob on the sewage tank with your thumb to empty it completely.

11.8.3 Winter operation



- ▷ Do not use antifreeze. Antifreeze can damage the toilet.

If the toilet, the water tank and the sewage tank (cassette) are in a frost-protected part of the vehicle, the toilet can also be used in the winter.

If the toilet, the water tank and the sewage tank (cassette) are not in a frost-protected part of the vehicle, empty the water tank, the sewage tank and the water pipes if there is a risk of frost. This prevents frost damage.

11.8.4 Temporary lay-up



- ▷ If the toilet is not to be used for an extended period, empty the water tank, the sewage tank and the water pipes.

Laying up the toilet:

- Empty the water tank.
- Flush the toilet until no more water runs into the toilet.
- Empty the sewage tank (cassette).
- Rinse the sewage tank thoroughly.
- Leave the drainage neck on the sewage tank open.
- Let the sewage tank dry for as long as possible.



Chapter overview

This chapter contains instructions regarding the care of the vehicle.

The instructions address the following topics:

- exterior of the vehicle
- interior
- water system
- winter operation

At the end of the chapter there is a checklist of measures you must carry out if you are not going to use the vehicle for an extended period of time.

The checklist address the following topics:

- temporary lay-up
- winter lay-up
- start-up after a lay-up

12.1 External care

12.1.1 Washing with a high-pressure cleaner



- ▷ Do not clean the tyres with a high-pressure cleaner. The tyres might be damaged.
- ▷ Do not spray external applications (deco-films) directly with the high-pressure cleaner. The external applications could come off.

Before cleaning the vehicle with a high-pressure cleaner, observe the operating instructions of the high-pressure cleaner.

When cleaning with the nozzle for circular jet between the vehicle and the cleaning nozzle, maintain a minimum distance of approx. 700 mm.

Take into consideration that the jet of water comes out of the cleaning nozzle with pressure. The vehicle may be damaged by incorrect handling of the high-pressure cleaner. The temperature of the water should not be above 60 °C. Keep the jet of water in constant movement during the washing process. Do not direct the water jet at clearances, built-in electrical parts, plugs, seals, the ventilation grill or the skylights. The vehicle may be damaged or water may enter the interior.

12.1.2 Washing the vehicle



- ▷ Never clean the vehicle in the car wash. Water can enter the refrigerator grills, the waste gas vents, the ventilation of the extractor hoods or the forced ventilations. The vehicle could be damaged.
- Wash the vehicle only on a washing site intended for this purpose. Avoid full sunshine. Observe environmental measures.
- Only clean external applications and synthetic parts with plenty of warm water, dish washing liquid and soft cloth.
- Wash down the vehicle with plenty of water, a clean sponge or a soft brush. In the case of stubborn dirt add dish washing liquid to the water.
- Painted exterior walls may also be cleaned with a caravan cleaner.
- Treat rubber seals of doors and storage flaps with talc.
- Treat locking cylinder of doors and storage flaps with graphite dust.



12.1.3 Windows of acrylic glass

Acrylic glass windows are delicate and require very careful handling.



- ▷ Never rub acrylic glass windows dry as dust particles might damage the surface!
- ▷ Only clean acrylic glass windows with plenty of warm water, some dish washing liquid and a soft cloth.
- ▷ Never use glass cleaning agents with chemical, abrasive or alcohol-containing additives. Premature brittleness of the panes and associated cracks may result from their use.
- ▷ Avoid contact of cleansing agents used for the body (e.g. tar- or silicone-removing agents) with acrylic glass.
- ▷ Do not clean vehicle in car wash.
- ▷ Do not attach stickers to the acrylic glass windows.
- ▷ Having cleaned the vehicle rinse acrylic glass with sufficient clear water.
- ▷ Apply talcum powder to rubber seals.



- ▷ An acrylic glass cleanser with antistatic effect is suitable for a follow-up treatment. Small scratches can be treated with an acrylic glass polish. These agents are available at the accessories shop.

12.1.4 Hot galvanized chassis

Salt deposits damage the hot galvanized chassis and can cause white rust.

But so-called white rust represent no defects. It is only a visual damage.

The most frequent causes for white rust are:

- Abrasives and de-icing salts (e.g. when driving during winter months)
- Condensation (e.g. by covering the vehicle with plastic foils or awning)
- Humidity (e.g. by parking the vehicle in high grass, in puddles or sludge)
- Cleaning agents (e.g. by cleaning with aggressive cleaning agents)
- Snow (e.g. by standing too long in snow)
- Defective ventilation (e.g. by covering with aprons in the floor area)

To avoid formation of white rust or to remove any existing white rust, we recommend the following method:

- After driving in winter, rinse out the hot galvanized surfaces with clean water.
- If hot galvanized parts are affected by white rust, clean with a zinc cleaner (e.g. Poligrat).

12.1.5 Underbody

The underbody of the vehicle is partly coated with an age-resistant underbody protection. Should the underbody protection be damaged, repair immediately. Do not treat areas coated with underbody protection with spray oil.



- ▷ Only use products approved by the manufacturer. Our authorised dealers and service centres will be happy to advise you.



12.2 Interior care



- ▷ If possible, treat stains immediately.
- ▷ Acrylic glass windows are delicate and require very careful handling (see section 12.1.3).
- ▷ Synthetic parts in the toilet and living area are very delicate and should be treated with care. Do not use solvents, alcohol-containing cleansers or scourers. This procedure will help you to avoid brittleness and formation of cracks.
- ▷ Hair colourants, nail varnish, cigarette ash and similar substances may cause permanent stains or discolouration. For this reason, you should prevent these substances from getting onto plastic parts. If they do get onto plastic parts, you should remove these substances immediately.
- ▷ Do not pour any corrosive agents into the drain holes. Never pour boiling water directly into the drain holes. Corrosive agents and boiling water cause damage to drainage pipes and siphon traps.
- ▷ Do not use vinegar based products to clean the toilet and water system, or for decalcification of the water system. Vinegar-based products may cause damage to seals or parts of the installation. Use standard decalcifying products for decalcification.
- ▷ Save water. Mop up all remaining water.



- ▷ The upholstery will fade over time, if it is exposed to sunlight. If the temperature within the vehicle rises rapidly as well, the colour will change at an accelerated rate. Therefore, we recommend to close the shades of the parked vehicle when there is strong sunlight. Ensure that heat does not build up when you close the shades.
 - ▷ For information about the use of maintenance products, our representatives and service centres will be glad to advise.
- Surface and knobs of furniture, lamps and synthetic parts in the toilet and living area should be cleaned with water and a wool cloth. A mild cleanser may be added to the water. If required, use furniture polish for the painted surfaces.
 - Clean upholstery with dry foam specially manufactured for the use on upholstery or with the foam of a mild detergent. Do not wash upholstery. Protect upholstery from direct sunlight so that it does not lose its colour.
 - Curtains and net curtains should be dry cleaned.
 - Clean PVC-floor covering with a mild, soapy cleanser for PVC floors. Do not place carpet on wet PVC-floor covering. The carpet and the PVC-floor covering may stick together.
 - Never clean the sink or the gas cooker with a scourer. Avoid anything which may cause scratching or grooves.
 - Clean the burners on the gas cooker using a damp cloth only. Prevent any water from penetrating the burner cover. Water may damage the burners.
 - Insect screen fabric on the door, windows, and skylights: Always remove insect residues or dirt immediately. Otherwise the fabric could be damaged. Wasps and birds could cause damages when feeding on the adhered residues. A microfibre cloth is recommended for the cleaning of the insect screen fabric. Only use cleaning agents if they are pH neutral and do not contain any solvents. If required, you can carry out a careful previous cleaning using a soft brush or a fine brush attachment on a vacuum cleaner.



- Brush blinds with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Grease or stubborn dirt may be removed with a mild soap at 30 °C (curd soap).
- Brush Roman shades with a soft brush or vacuum with the brush attachment of the vacuum cleaner. Grease or stubborn dirt may be removed with a mild soap at 30 °C (curd soap).

12.3 Water system

12.3.1 Cleaning the water canister or the water tank

- Empty the water canister or water tank and close the drainage opening of the water tank.
- Remove the cap of the water canister or the water tank.
- Fill water canister or water tank with water and some washing-up liquid (do not use any scourers).
- Using a trade standard brush for washing dishes, scrub the water canister or the water tank until there is no longer any visible deposit.
- Scrub also the pump housing.
- If possible, clean fresh water sensors in the water tank manually through the cleaning openings.
- Rinse water canister or water tank with copious amounts of drinking water.

12.3.2 Cleaning the water pipes



- ▷ Only use suitable cleaning agents as sold by the specialist trade.
- ▷ The cleaning agent must meet national regulations and be approved (if required).



- ▷ Collect any emerging mixture of water and cleaning agent for correct disposal.

- Empty the water system.
- Close all drainage openings and drain cocks.
- Fill mixture of water and cleaning agent into the water tank. Observe the manufacturer's instructions regarding the mixing ratio.
- Open the drain cocks one by one.
- Leave the drain cocks open until the mixture of water and cleaning agent has reached the respective drain.
- Close the drain cocks.
- Set all the water taps to "Hot" and open them.
- Leave the water taps open until the mixture of water and cleaning agent has reached the drain.
- Set all water taps to "Cold" and open them.
- Leave the water taps open until the mixture of water and cleaning agent has reached the drain.
- Close all water taps.
- Flush the toilet several times.



- Allow the cleaning agent to act in accordance with the manufacturer's instructions.
- Empty the water system. Collect the mixture of water and cleaning agent for correct disposal.
- For rinsing fill the entire water system with drinking water and empty again several times over.

12.3.3 Disinfecting the water system



- ▷ Only use suitable disinfectants as sold by the specialist trade.
- ▷ The disinfectant must meet national regulations and be approved (if required).



- ▷ Collect any emerging mixture of water and disinfectant for correct disposal.

When disinfecting the water system, proceed the same way as when cleaning the water pipes (see section 12.3.2). Simply use disinfectant instead of cleaning agent.

12.4 Winter care

De-icing salt damages the underbody and the parts open to water spray. We recommend that you wash the vehicle more frequently during wintertime. Mechanical and surface treated parts and the underside are under particular strain, and should therefore be cleaned thoroughly.



- ▷ If there is any risk of frost, always run heater at a minimum of 15 °C. Switch the circulation fan (if there is one) to automatic. In the case of extreme external temperatures, the furniture flaps and doors should be left slightly open. The inflowing warm air can help prevent the freezing of water pipes, for example, and counteract the formation of condensation in the storage spaces.
- ▷ If there is any risk of frost, cover the outside surface of the windows with winter insulation mats.
- ▷ Keep the waste gas vent, skylights with forced ventilation and mushroom-shaped vents free of snow. For a roof vent, use a vent extension which is at least 10 cm (4 inch) long.



12.5 Lay-up

12.5.1 Temporary lay-up



- ▶ If the vehicle has been stationary for a long period (approx. 10 months) have the braking and gas systems checked by an authorised specialist workshop.
- ▶ Take into consideration that water is undrinkable after only a short time.
- ▶ Animal damage to cables can lead to short circuits. Fire hazard!




Animals (especially mice) can cause great damage to the interior of the vehicle. This is especially true if the animal remains undisturbed in a parked vehicle.

The animals can get into the vehicle at an opportune moment and hide from view.

To keep damages from animals to a minimum or to avoid them altogether, regularly check the vehicle for damage or animal traces. This is especially important approx. 24 hours after parking the car in storage.

If animal traces are found, contact the authorised dealer or service centre. If damage to cables has occurred, they can result in short circuits. The vehicle could catch fire.

Before laying up the vehicle, go through the following checklist:

	Activities	Done
Chassis	Lubricate the moving parts of the caravan coupling	
	 ▶ Do not lubricate the friction pads on the stabiliser!	
	Jack up caravan with suitable support so that the wheels do not bear any load, or move caravan every four weeks. This prevents any pressure points from occurring on tyres and wheel bearings	
	 ▷ Never use the fitted corner steadies as a car jack but only external support.	
	Protect the tyres from direct exposure to the sun. Danger of formation of cracks!	
	Inflate tyres up to the recommended maximum pressure	
Body	Always provide for sufficient ventilation in the underbody area	
	 ▷ Humidity or lack of oxygen e.g. by covering with plastic film may cause optical irregularities to the underbody.	
Interior	All vents should be sealed with the appropriate caps and all other openings (apart from forced ventilations) should also be sealed. This prevents animals (e.g. mice) from gaining entry	
	Air the interior, all storage spaces accessible from the outside, and the parking space (e.g. garage) every 3 weeks in order to prevent the occurrence of condensation and resulting mould formation	
	Place upholstery in an upright position for ventilation, and cover	
	Clean refrigerator	
	Allow refrigerator and freezer compartment doors to remain slightly open	
	Search for traces of animals that have gained entry	



	Activities	Done
Gas system	Close regulator tap on the gas bottle	
	Close all gas isolator taps	
	Always remove gas bottles from the gas bottle compartment, even if they are empty	
Electrical system	Spray the contacts on the thirteen-pin connector with contact spray	
Water system	Empty the entire water system. Blow out the residual water from the water pipes (0.5 bar max.). Leave the water taps on in central position. Leave the safety/drainage valve (if there is one) and all drain cocks open. Observe the notes in chapter 11	

12.5.2 Winter lay-up

Additional measures are required if laying up the vehicle over winter:

	Activities	Done
Chassis	Clean body and underbody thoroughly and spray with hot wax or protect with varnish	
	Rectify damage to the paintwork	
Body	Clean vehicle from outside thoroughly	
	Keep the forced ventilation open	
	Clean and lubricate corner steadies	
	Clean and grease all door and flap hinges	
	Brush oil or glycerine on all locking mechanisms	
	Rub all rubber seals with talc	
	Use graphite dust to treat locking cylinders	
Interior	Position de-humidifiers	
	Remove upholstery from the vehicle and store in a dry place	
	Air the interior every 3 weeks	
	Empty all cabinets and storage compartments, open flaps, doors and drawers	
	Thoroughly clean the interior	
	If there is a risk of frost, do not leave the flat screen in the vehicle	
Water system	Clean the water system using a cleaning agent from a specialised store	
Complete vehicle	Clean the awning area and store in a dry place	
	Arrange the tarpaulins in such a way that the ventilation openings are not covered, or use porous tarpaulins	



12.5.3 Starting up the vehicle after a temporary lay-up or after lay-up over winter

Go through the following checklist before start-up:

	Activities	Done
Chassis	Check the tyre pressure on all tyres	
	Check the tyre pressure of the spare wheel	
Body	Check the functioning of the fitted corner steadies	
	Check that the doors, windows and skylights are working properly	
	Check the function of all external locks	
	Remove the cover from the waste gas vent of the heater (if there is one)	
	Remove the winter cover from the refrigerator grills (if there is one)	
Gas system	Put the gas bottles in the gas bottle compartment, tie down and connect to the gas pressure regulator	
Electrical system	Connect to 240 V power supply using the external socket	
	Check that the electrical system are working, e.g. interior light, socket and all installed electrical appliances	
Water system	Disinfect water pipes and water tank	
	Close all drain cocks and water taps	
	Check the water taps, drain cocks and water distributors for leaks	
Appliances	Check the function of the refrigerator	
	Check the function of the heater/hot water source	
	Check the function of the gas cooker	



Chapter overview

This chapter contains instructions about inspection and maintenance work concerning the vehicle.

The maintenance instructions address the following topics:

- stabiliser
- braking system
- replacing light bulbs
- adjusting the tension of the springs on the blinds
- spare parts

At the end of the chapter you will find important instructions on how to obtain spare parts.

13.1 Inspection work

Like any technical appliance, the vehicle must be inspected at regular intervals.

This inspection work must be carried out by qualified personnel.

Special technical knowledge, which cannot be taught within the framework of this instruction manual, is required for these tasks. Personnel possessing this technical knowledge are available for assistance at all service centres. Their experience and regular technical instruction by the factory as well as equipment and tools guarantee expert and up-to-date inspection of the vehicle.

The service centre in charge will confirm the work performed.



- ▷ Observe the inspections indicated by the manufacturer and have them carried out at the specified intervals. The value of the vehicle is thus preserved.
- ▷ The confirmation of the inspection work carried out serves as valid proof in the event of damage and guarantee claims.

13.2 Maintenance work

As with every machine, this vehicle requires maintenance. The extent and frequency of the maintenance work required depend on conditions of operation and use. More difficult operating conditions make it necessary to service the vehicle more often.

Have the appliances serviced at the intervals specified in the corresponding instruction manuals.



13.3 BPW stabiliser

Clean the stabiliser and the coupling head regularly. Use either thinners or white spirit.

When lubricating the stabiliser ensure that no lubricant is on the friction pads.

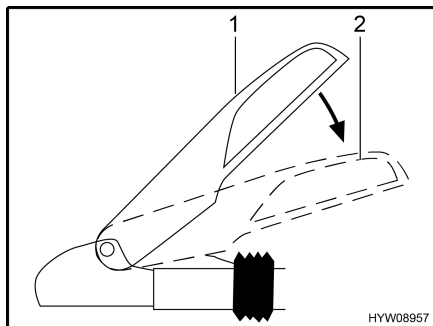


Fig. 81 Coupling handle

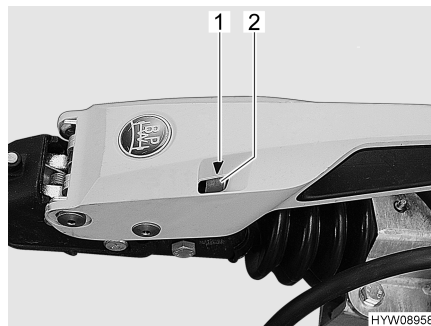


Fig. 82 Wear indicator

Checking the stabilising device:

- Couple the caravan to the towing vehicle.
- Activate the stabilising mechanism. To do this, press the coupling handle downwards (Fig. 81,2) from the closed position (Fig. 81,1) to its stop limit.

A wear indicator (Fig. 82,1) is attached on the coupling handle. The colour field (Fig. 82,2) in the longitudinal hole shows the condition:

- Wear indicator in the green OK zone: Everything is okay.
- Wear indicator in the yellow transition zone: Replace friction pads.
- Wear indicator in the red STOP zone: Do not drive with the caravan, replace friction pads immediately.



- ▷ It is not possible to reset the friction pads.

13.4 Braking system BPW chassis

Have maintenance work on the braking system carried out by a specialist workshop.

Look up the following table for the inspection deadlines.

First inspection	Braking system	Brake lining
–	Every 2,000 or 3,000 km or every 12 months	Every 10,000 km or every 24 months



13.5 Replacing bulbs, external



- ▶ Bulbs and light fittings can be extremely hot. Therefore, allow lights to cool down before changing bulbs.
- ▶ Store bulbs in a safe place inaccessible to children.
- ▶ Do not use any bulb that has been dropped or which shows scratches in its glass. The bulb might burst.



- ▷ A new bulb should not be touched with the fingers. Use a cloth when installing the new bulb.
- ▷ Use only bulbs of the same type and with the correct wattage (see section 13.5.4 "Types of bulbs for exterior lighting").
- ▷ If LEDs in lights are defect, contact an authorised dealer or service centre.

Types of bulbs

Different types of bulbs are used in the vehicle. Below, we have described how to change the different types of bulbs.

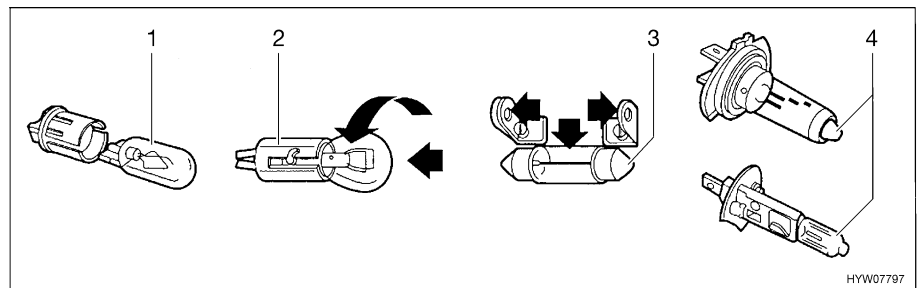
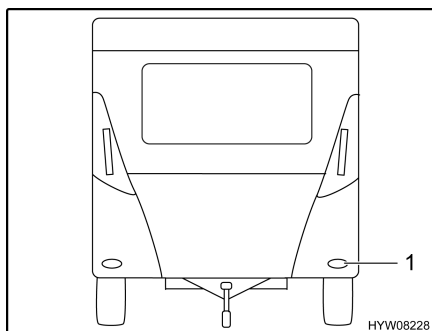


Fig. 83 Types of bulbs

Pos. in Fig. 83	Fixture type/bulb type	Changing
1	Plug-in fixture	To remove, pull out the bulb To mount, push the bulb into the socket with gentle pressure
2	Bayonet socket	To remove, press the bulb down and turn in an anticlockwise direction To insert, place the bulb in the socket and turn in a clockwise direction
3	Cylindrical bulbs	To remove and to insert, carefully bend the contacts of the lamp holder outwards
4	Halogen bulb	To remove, release retaining springs After inserting, hook the retaining springs again



13.5.1 Front lights

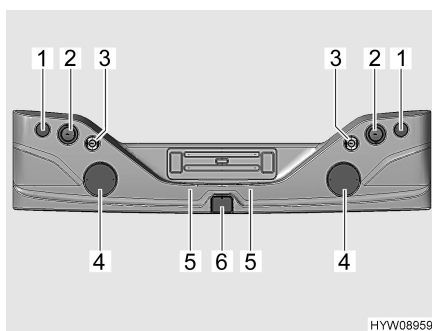


- 1 Clearance light (dependent on model)

Fig. 84 Front lights

- Use a suitable tool (e.g. a screwdriver) to lever out the light cover. Apply the tool to the notch in the housing.
- Remove cover.
- Change bulb.

13.5.2 Rear lights



- 1 Brake light/rear light
2 Direction indicator
3 Reverse light
4 Reflectors
5 Licence plate light
6 Fog tail light

Fig. 85 Rear lights

All the bulbs of the rear lights are changed as described below.

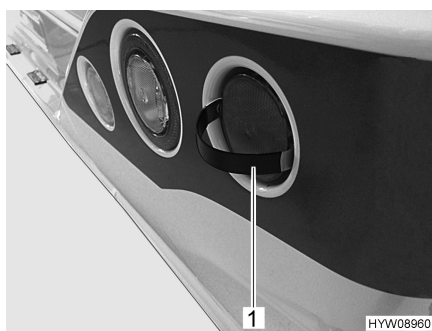
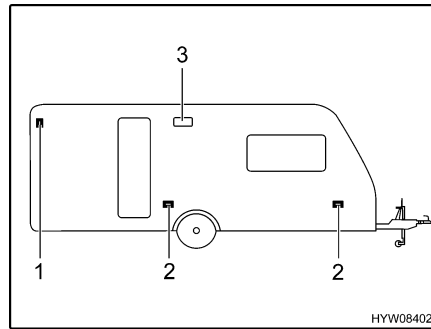


Fig. 86 Remove cover

- Insert the snap-in lugs of the supplied tool (Fig. 86,1) at the sides of the cover as shown.
- Remove the cover with the tool.
- Change bulb.
- Applying light pressure, push the cover on the lamp until it snaps into place.



13.5.3 Side lights



- 1 Side marker light (dependent on model)
- 2 Reflectors
- 3 Awning light

Fig. 87 Side lights

Side marker light

- Unscrew the two screws on the light cover.
- Remove cover.
- Change bulb.

Awning light

- Open the wardrobe in the vehicle.
- Unscrew the two screws on the light cover.
- Remove cover.
- Change bulb.

13.5.4 Types of bulbs for exterior lighting

	Item no.	Exterior lighting	Type of bulb
Front	1	Clearance light	12 V 5 W
Rear	1	Brake light/rear light	12 V 21 + 10 W
	2	Direction indicator	12 V 21 W
	3	Reverse light	12 V 21 W
	5	Licence plate light	C 12 V 5 W
	6	Fog tail light	12 V 21 W
Side	1	Side marker light	C 12 V 5 W
	2	Reflectors	-
	3	Awning light	12 V 21 W

13.6 Replacing bulbs, internal



- ▶ Bulbs and light fittings can be extremely hot. Therefore, allow lights to cool down before changing bulbs.
- ▶ Shut off the power supply on the safety cut-out in the 240 V fuse box before changing bulbs.
- ▶ Store bulbs in a safe place inaccessible to children.
- ▶ Do not use any bulb that has been dropped or which shows scratches in its glass. The bulb might burst.



- ▶ Halogen lamps can get very hot. When the light is switched on, there must always be a safety distance of 30 cm between light and flammable objects. Fire hazard!
- ▶ Do not replace the LEDs in lamps with standard light bulbs. Risk of fire due to intense heat build up.



- ▷ A new bulb should not be touched with the fingers. Use a cloth when installing the new bulb.
- ▷ Only use bulbs of the same type and with the correct wattage.
- ▷ If LEDs in lights are defect, contact an authorised dealer or service centre.

13.6.1 Ceiling lamp

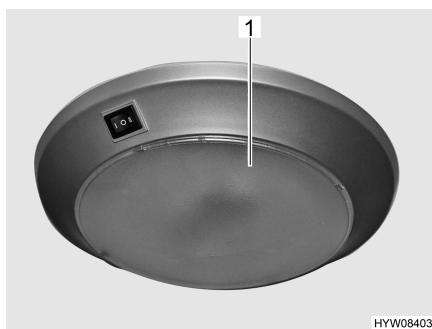


Fig. 88 Ceiling lamp

- Changing bulbs:*
- Carefully unclip and remove the transparent plastic insert (Fig. 88,1).
 - Remove bulb.
 - Put in a new bulb.
 - Reassemble the lamp in the reverse order.

13.6.2 Room lamp

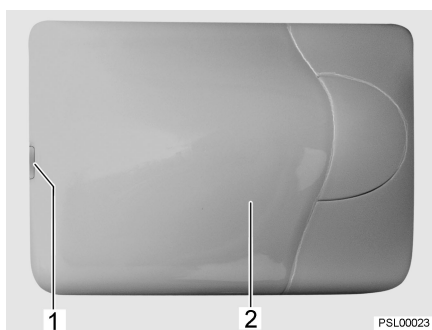


Fig. 89 Room lamp

- Changing bulbs:*
- Use a suitable tool (e.g. a screwdriver) to carefully lever out the cover (Fig. 89,2) at the notch (Fig. 89,1) and remove it.
 - Remove halogen bulb.
 - Put in a new halogen bulb.
 - Reassemble the lamp in the reverse order.



13.6.3 Halogen spotlight



Fig. 90 Halogen spotlight

- Changing bulbs:*
- Pull the halogen bulb (Fig. 90,1) forward out of the socket.
 - Put in a new halogen bulb.

13.6.4 Recessed halogen light

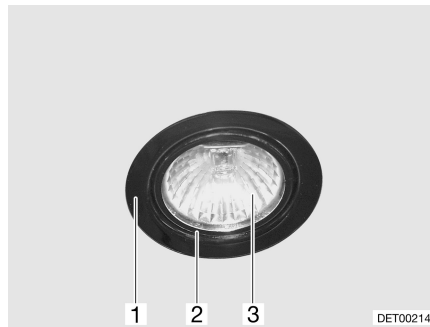


Fig. 91 Recessed halogen light

- Changing bulbs:*
- Use a suitable tool (e.g. a screwdriver) to lever out and remove the lamp (Fig. 91,1).
 - Take the inner ring (Fig. 91,2) out of the lamp.
 - Remove cover (Fig. 91,3).
 - Remove halogen bulb.
 - Put in a new halogen bulb.
 - Reassemble the lamp in the reverse order.

13.6.5 Types of bulbs for interior lighting

Interior lighting	Type of bulb
Ceiling lamp (halogen pin socket)	12 V 10 W (2 x)
Room lamp (halogen pin socket)	12 V 10 W
Halogen spotlight (halogen contact plug)	12 V 10 W
Recessed halogen light (halogen contact plug)	12 V 5 W



13.7 Adjusting the springs of the blind and the insect screen



- ▷ The spring adjustment screw cannot be turned back.

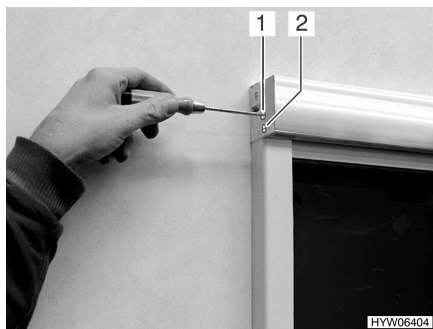


Fig. 92 Re-tensioning the spring tension

Depending on the model, the tensile force of the spring for the blind or the insect screen can be adjusted if necessary. Two adjustment screws for the blind (Fig. 92,1) and the insect screen (Fig. 92,2) are at the left side of the window frame.

Retensioning:

- With a flat head screwdriver, turn the adjustment screw in a clockwise direction to the engagement position.
- Check the tensile force of the spring.
- If necessary, turn the adjustment screw in a clockwise direction to the following engagement position.

13.8 Spare parts



- ▶ Every alteration of the original condition of the vehicle can alter road behaviour and jeopardize road safety.
- ▶ The special equipment and original spare parts recommended by us have been specially developed and supplied for your vehicle. These products are available at the authorised dealer or service centre. The authorised dealer or service centre is informed about admissible technical details and carries out the required work correctly.
- ▶ The use of accessories, parts and fittings not supplied by us may cause damage to the vehicle and jeopardize road safety. Even if an expert's report, a general type approval or a design certification exists, there is no guarantee for the proper quality of the product.
- ▶ No liability can be assumed for damage caused by products which have not been released by us. This also applies to impermissible alterations to the vehicle.

For safety reasons, spare parts for pieces of equipment must correspond with manufacturer's instructions and be permitted by the manufacturer as a spare part. These spare parts may only be fitted by the manufacturer or an authorised specialist workshop. The authorised dealers and service centres are available for any spare parts requirement.



Here are some suggestions of important spare parts:

- Fuses
- Bulbs
- Water pump (submerged pump)

When ordering spare parts, please indicate the serial number or the chassis number and the vehicle type to the dealer.

The vehicle described in this instruction manual is built and equipped to factory standards. Special equipment is offered depending on its purpose or use. When fitting special equipment check if such equipment has to be entered in the vehicle documents. Observe the max. permissible gross weight. The authorised dealer or service centre will be happy to advise you.

13.9 Vehicle identification plate

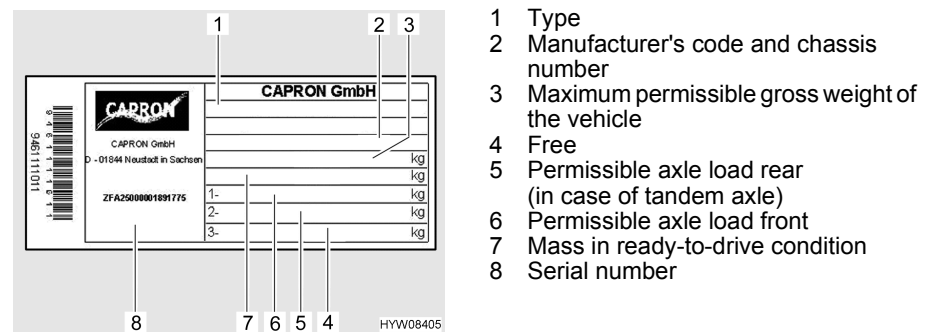


Fig. 93 Vehicle identification plate

The vehicle identification plate (Fig. 93) with the serial number can be found in the gas bottle compartment, and the chassis number on the right-hand crosshead of the drawbar.

Do not remove the vehicle identification plate. The vehicle identification plate:

- Identifies the vehicle
- Helps with the procurement of spare parts
- Together with the vehicle documents identifies the vehicle owner



- ▷ Always include the **serial number** with all inquiries for the customer service office.

13.10 Warning and information stickers

There are warning and information stickers on and inside the vehicle. Warning and information stickers are for the sake of safety and must not be removed.



- ▷ Replacement stickers can be obtained from an authorised dealer or a service centre.



13.11 Replacement keys

To order replacement keys make a note of the following:

Locks for:	To order keys you need:	Obtainable at:	Telephone information:
Body	Serial number, chassis number, second key or key number	Dealers	—



Chapter overview

This chapter contains instructions regarding the tyres of the vehicle.

The instructions address the following topics:

- tyre selection
- handling of tyres
- changing wheels
- spare wheel support

At the end of the chapter there is a table you can use to find the correct tyre pressure for your vehicle.

14.1 General



- ▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.



- ▷ Only check the tyre pressure on cold tyres.
- ▷ Tubeless tyres have been installed on the vehicle. Never install tubes in these tyres.



- ▷ In the case of a puncture, pull over to the side of the road. Make vehicle and caravan safe with a hazard warning triangle. Switch on the warning lights.
- ▷ Tyres must not be older than 6 years as the material will become brittle over time. The four-digit DOT number on the tyre flank indicates the date of manufacture. The first two digits designate the week, the last two digits the year of manufacture.

Example: (0114) Week 01, year of manufacture 2014.

Observe:

- Check the tyres regularly (every 2 weeks) for equal tread wear, tread depth and external damage.
- Replace tyres at the latest, when the minimum depth of tread stipulated by law is reached.
- Always use tyres of the same model, same brand and same style (summer and winter tyres).
- Only use tyres approved for the wheel rim type fitted. The permitted rim and tyre sizes are quoted in the vehicle documents and the authorised dealer or service centre will always be glad to give you advice.
- Run-in new tyres for approx. 100 km (60 miles) at low speed since only then do they reach full strength.

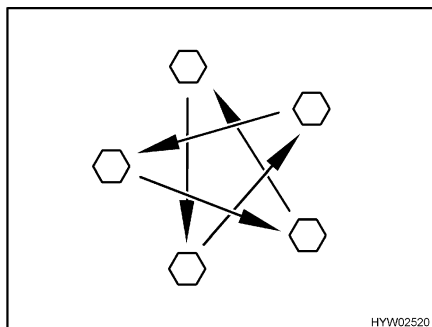


Fig. 94 Tighten the wheel nuts or wheel bolts cross-wise

- Check regularly that the wheel nuts or wheel bolts are firmly seated. Re-tighten the wheel nuts or wheel bolts of a changed wheel cross-wise (Fig. 94) after 50 km (30 miles). See section 14.5.2 for tightening torque.
- When using new or newly painted rims, re-tighten the wheel nuts or wheel bolts once again after approx. 1,000 to 5,000 km (600 miles to 3,000 miles).
- For lay-ups or long periods of inactivity, keep the tyres and tyre bearings free from pressure points:
Jack up the vehicle so that the wheels do not bear any load, or move the vehicle every 4 weeks in such a way that the position of the wheels is changed.

14.2 Tyre selection



- ▶ A wrong tyre can damage the tyres during the journey and even cause it to burst.



- ▷ If tyres that are not approved for the vehicle are used, then the type approval for the vehicle and subsequently the insurance coverage can lapse. The authorised dealer or service centre will be happy to advise you.

The tyre sizes approved for the vehicle are given in the vehicle documents or can be obtained from the authorised dealers or service centres. Each tyre must fit the vehicle on which it will be driven. This applies to the external dimensions (diameter, width), which are indicated with the standardised size designations. In addition, the tyres must meet the requirements of the vehicle with regard to weight and speed.

Weight refers to the maximum permissible axle load which can be distributed on two tyres. The maximum load-carrying capacity of a tyre is indicated by its load index (= LI, load index code).

The maximum permissible speed for a tyre (with full load-carrying capacity) is indicated by the speed index (= SI). Together, load index and speed index form the operating code of a tyre. This is an official component of the complete, standardised dimensions description which appears on every tyre. The information on the tyres must correspond to the specifications which appear in the vehicle papers.



14.3 Tyre specifications

215/70 R 15C 109/107 Q
(example)

Description	Explanation
215	Tyre width in mm
70	Height-to-width proportion in percent
R	Tyre design (R = radial)
15	Rim diameter in inches
C	Commercial (transporter)
109	Load index code for single tyres
107	Load index code for twin tyres
Q	Speed index (Q = 160 km/h)

14.4 Handling of tyres

- Drive over kerbs at an obtuse angle. Otherwise the flanks of the tyres may get pinched. Driving over a kerb at a sharp angle can damage the tyre and result in it getting ruptured.
- Drive over high manhole covers at a slow speed. Otherwise the tyres may get pinched. Driving over a high manhole cover at high speed can damage the tyre and result in it getting ruptured.
- Check the shock absorbers regularly. Driving with poor shock absorbers significantly increases wear.
- Avoid block brakings. Block braking gives the tyres "brake plates" of varying strength. This reduces driving comfort. It might even make the tyres unserviceable.
- Do not clean the tyres with a high-pressure cleaner. The tyres can suffer serious damage within just a few seconds and rupture as a result.

14.5 Changing wheels

14.5.1 General instructions

The spare wheel is in the drawbar box. Use a commercial scissor-type jack to change the wheel.



- ▶ The vehicle must be on level, firm ground, secure from slipping.
- ▶ Before jacking up the vehicle firmly apply the handbrake.
- ▶ Prevent the vehicle from rolling away by blocking the opposite wheel with the wheel chocks.
- ▶ Under no circumstances jack the vehicle with the fitted supports.
- ▶ Position the vehicle jack underneath the axle, not under any circumstances on the bodywork.
- ▶ Never overload the vehicle jack. The maximum permissible load is specified on the vehicle jack's identification plate.
- ▶ Use the vehicle jack only for lifting the vehicle briefly while changing the tyre.
- ▶ Whilst the vehicle is in a jacked up position, persons must not lie down under it.

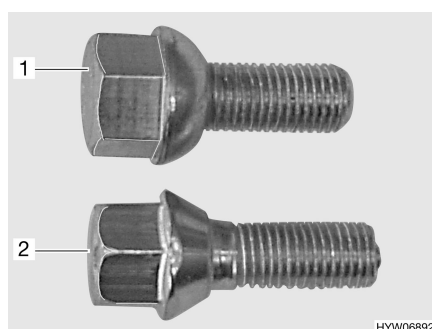


- ▷ Do not damage the thread of the thread bolt or wheel bolt when changing the wheel.
- ▷ Tighten the wheel nuts or wheel bolts cross-wise (Fig. 94).
- ▷ When changing wheels (e.g. alloy wheel rims or wheels with winter tyres), use the correct wheel bolts of the correct length and shape. Otherwise the wheels may not be securely fixed or the braking system may not work correctly.
- ▷ The use of wheel rims or tyres that are not approved for the vehicle can make it less than fully roadworthy; such wheel rims or tyres must be separately inspected and approved by an accredited test centre.



- ▷ Protect the vehicle according to the national regulations, e.g. with a hazard warning triangle.
- ▷ Before changing the wheel, check the wheel rim and tyre size, the max. tyre load and the speed index on the tyres. Only use the wheel rim and tyre sizes stated in the vehicle documents.
- ▷ When alloy wheel rims are mounted, the wheel nuts or wheel bolts for the spare wheel (steel wheel rim) are located in the drawer in the kitchen unit.

14.5.2 Tightening torque



- 1 Wheel bolt steel wheel rim
- 2 Wheel bolt alloy wheel rim

Fig. 95 Wheel bolts

Wheel rim	Tightening torque
Steel wheel rim	100 Nm (74 ft/lbs)
Alloy wheel rim	120 Nm (89 ft/lbs)

14.5.3 Changing a wheel



- ▶ The footplate of the vehicle jack must be levelly positioned on the ground.
- ▶ Do not tilt the vehicle jack.
- ▶ If alloy wheel rims are mounted and a steel spare wheel is mounted after a puncture: Do not drive any further than necessary (car dealer, car workshop, tyre dealer). Only drive at a suitable speed. The different wheels affect driving handling.



- ▷ The wheel you have replaced should be repaired immediately.
- ▷ Take note of the general instructions in this chapter.

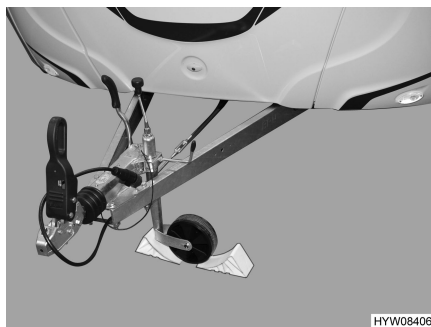


Fig. 96 Securing support wheel

Preparing the connected caravan:

- Loosen the stabilising device in caravan couplings with stabilising devices. Otherwise the friction pads will be highly loaded.
- Pull the handbrake of the towing vehicle and go to first gear or reverse gear.

Preparing the disconnected caravan:

- Park the vehicle on as even and stable a surface as possible.
- Apply the handbrake.
- Place the support wheel diagonal to the direction of travel and secure with suitable tools (Fig. 96).

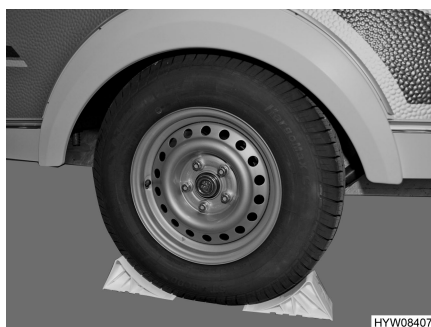


Fig. 97 Securing vehicle



Fig. 98 Commercial vehicle jack

Changing the wheel:

- Place chocks or other appropriate objects beneath the opposite wheel of the vehicle to secure it (Fig. 97).
- Remove the spare wheel from the spare wheel support.
- If the ground is soft, place a stable support such as a wooden board beneath the vehicle jack.
- Position the commercial scissor-type jack (Fig. 98) or hydraulic vehicle jack on the frame or on the axle.
- Turn the wheel bolts several times to loosen them, but do not remove them!
- Lift the vehicle until the wheel has been lifted 2 to 3 cm above the ground.
- Remove the wheel bolts and take off the wheel.
- Place the spare wheel on the wheel hub and adjust.
- Screw in the wheel bolts and slightly tighten them cross-wise.
- Crank down the vehicle jack and remove it.
- Using the wheelbrace, tighten the wheel bolts evenly. The target value of the tightening torque of the wheel bolts is 100 Nm for steel wheel rims or 120 Nm for alloy wheel rims.



14.5.4 Changing a wheel at alloy wheel rims



- ▶ The resting surfaces of the wheels on the break drums must be clean and free of burrs.
- ▶ Only use fastening parts provided for to loosen the wheels lightly and ensure that they rest correctly and move freely, subsequently tighten the wheel bolts cross-wise with a suitable wrench.
- ▶ Many axles do not have a centring aid, flange or bolts. It must be ensured that the wheel bolts are equally centered above the bolt circle (no jamming).
- ▶ Alloy wheel rims and steel wheel rims require different wheel bolts.

14.6 Spare wheel support



Fig. 99 Spare wheel support

The spare wheel support is fitted as standard in the gas bottle compartment. The spare wheel (Fig. 99,2) is available for a surcharge.

Removing the spare wheel:

- Undo bolt (Fig. 99,1).
- Remove the spare wheel (Fig. 99,2).

14.7 Tyre pressure



- ▶ Tyres overheat if the tyre pressure is too low. This can cause serious tyre damage.
- ▶ Check tyre pressure before a journey or every 2 weeks. Wrong tyre pressure causes excessive wear and can lead to damage or even to tyre burst. You can lose control of the vehicle.
- ▶ Use only valves that are approved for the specified tyre pressure.



- ▷ Only check the tyre pressure on cold tyres.

The payload and the durability of tyres is directly dependent on the tyre pressure. Air is a volatile medium. It is unavoidable that it will escape from tyres.

As a rule of thumb it can be assumed that a filled tyre loses pressure at a rate of 0.1 bar every two months. To prevent the tyres becoming damaged or burst, check the tyre pressure regularly.



- ▷ The information on pressure levels is valid for cold tyres and loaded vehicles.
- ▷ Pressure in hot tyres must be 0.3 bar higher than in cold tyres. Recheck the pressure when the tyres are cold.
- ▷ Tyre pressures in bar.
- ▷ The tyre pressure tolerance is +/- 0.05 bar.

Tyres	Maximum permissible gross weight mono axle (kg)	Maximum permissible gross weight tandem axle (kg)	Tyre pressure (bar)
155/80 R 13 LI 79	Up to 700		2.50
165/80 R 13 LI 83	Up to 700		2.30
	800		2.50
	900		2.80
185 R 14 C LI 102	Up to 1100		3.30
	1200		3.30
	1300		3.50
	1400		3.80
	1500		4.25
	1600	2800	4.50
185/60 R 15 C LI 94	Up to 1200	2200	3.60
	1300	2500	4.00
	1300		4.00
185/70 R 13 LI 86	Up to 700		2.50
	800		2.70
	900	1800	2.70
	1000	2000	3.00
185/70 R 14 LI 88	Up to 900	1800	2.60
	1000	2000	2.80
	1100	2200	2.80
195 R 14 C LI 106	Up to 1100		3.00
	1200		3.00
	1300		3.20
	1400		3.40
	1500		3.75
	1600	2800	4.00
	1700		4.50
	1800	3500	4.50
195/65 R 14 LI 89	Up to 1000	2000	2.50
	1100	2200	3.00
195/65 R 15 LI 91	Up to 1000	2000	2.50
	1100	2200	2.70



Tyres	Maximum permissible gross weight mono axle (kg)	Maximum permissible gross weight tandem axle (kg)	Tyre pressure (bar)
195/65 R 15 XL LI 95	Up to 1100	2000	2.50
	1200	2200	2.80
	1300	2500	3.10
195/70 R 13 XL LI 90	Up to 1000	2000	2.90
	1100	2200	3.10
195/70 R 14 LI 91	Up to 1000	2000	2.50
	1100	2200	2.70
195/70 R 14 XL LI 95	Up to 1100	2000	2.50
	1200	2200	2.80
	1300	2500	3.10
195/70 R 14 XL LI 96	Up to 900	1800	2.50
	1000	2000	2.50
	1100	2200	2.50
	1200		2.70
	1300	2500	3.00
195/70 R 14 C LI 104	Up to 1100	2000	3.30
	1200	2200	3.50
	1300	2500	3.80
	1400		4.10
	1500		4.50
	1600	2800	4.80
	1700		5.20
195/70 R 15 C LI 104	Up to 1100	2000	3.00
	1200	2200	3.25
	1300	2500	3.50
	1400		3.75
	1500	2800	4.00
	1600		4.25
	1700		4.50
205 R 14 C LI 109	Up to 1600		3.70
	1700		4.00
	1800	3500	4.25
	1900		4.50



Tyres	Maximum permissible gross weight mono axle (kg)	Maximum permissible gross weight tandem axle (kg)	Tyre pressure (bar)
205/70 R 15 C LI 106	Up to 1100	2000	3.00
	1200	2200	3.00
	1300	2500	3.20
	1400		3.50
	1500		3.80
	1600	2800	4.00
	1700		4.20
	1800	3500	4.50
215 R 14 C LI 112	Up to 1600		3.30
	1700		3.50
	1800	3500	3.80
	1900		4.00
	2000		4.30
215/55 R 16 XL LI 97	Up to 1100		2.70
	1200		2.70
	1300		3.00
	1400		3.00
215/70 R 15 C LI 109	Up to 1100	2000	3.00
	1200	2200	3.25
	1300	2500	3.50
	1400		3.50
	1500		3.70
	1600	2800	4.25
	1700		4.70
	1800	3500	4.90
	1900		5.10



Tyres	Maximum permissible gross weight mono axle (kg)	Maximum permissible gross weight tandem axle (kg)	Tyre pressure (bar)
225/70 R 15 C LI 112	Up to 1100	2000	3.00
	1200	2200	3.00
	1300	2500	3.00
	1400		3.00
	1500		3.00
	1600	2800	3.50
	1700		3.50
	1800	3500	3.70
	1900		4.00
	2000		4.30

Max. permissible speed = 100 km/h (60 mph).

Please always observe the speed limits in the individual countries.

The vehicles are constantly brought up to the newest technical standards. It is possible that new tyre sizes are not yet included in this table. If this is the case, any authorised dealer or service centre will be happy to provide the newest values.



Chapter overview

This chapter contains instructions about possible faults in your vehicle. The faults are listed with their possible causes and corresponding remedies. The instructions address the following topics:

- chassis
- braking system
- electrical system
- gas system
- gas cooker
- heater
- hot water source
- refrigerator
- water supply
- body

The specified faults can be remedied with relative ease and without a great deal of specialised knowledge. In the event that the remedies detailed in this instruction manual should not be successful, an authorised specialist workshop must find and eliminate the cause of the fault.

15.1 Chassis

Fault	Cause	Remedy
Coupling does not lock in place after being placed on top	Ball larger than Ø 50 mm	Remove dirt
		Contact customer service
	The coupling interiors are soiled and no longer work automatically	Clean well and lubricate (not stabiliser)
Caravan cannot be detached	Ball worn	Position the caravan and towing vehicle in the same direction and detach. Immediately replace the worn ball

15.2 Braking system



- ▶ Have defects on the braking system immediately remedied by an authorised specialist workshop.
- ▶ Follow maintenance or manufacturer specifications.



15.3 Electrical system



▷ See chapter 9 for changing the fuses.

Fault	Cause	Remedy
Road light system does no longer work correctly	Bulb is defective	Unscrew cover of the relevant light, replace bulb. Note volts and watts specifications
	Contacts on the plug and/or in the socket have oxidised and/or are contaminated	Clean contacts and spray with contact spray
	Short circuit caused by water in the plug and/or socket	Open plug and/or socket, dry out, and spray with contact spray
	Cable interruption on the plug and/or socket	Open plug and/or socket, re-connect cable (see connection diagram in chapter 9)
Road light system does not match the towing vehicle light system	Contact connections within the plug have been reversed	Check contact allocation and wiring on the plug/connector of the caravan
Interior lighting does no longer work correctly	Bulb is defective	Unscrew cover of the relevant light, replace bulb. Note volts and watts specifications
	Fuse on the power pack is defective	Replace fuse
12 V interior lighting does not work	240 V automatic circuit breaker is switched off	Switch on the 240 V automatic circuit breaker
	Thermal cut-out in the power pack has triggered	Wait until the thermal cut-out switches back on
	Fuse on the power pack is defective	Replace fuse
	Power pack is defective	Contact customer service
240 V interior lighting does not work	240 V automatic circuit breaker is switched off	Switch on the 240 V automatic circuit breaker
	Thermal cut-out in the power pack has triggered	Wait until the thermal cut-out switches back on
No 240 V power supply despite connection	240 V automatic circuit breaker has triggered	Switch on the 240 V automatic circuit breaker



15.4 Gas system



- ▶ In case of a defect of the gas system (gas odour, high gas consumption) there is danger of explosion! Close regulator tap on the gas bottle immediately. Open doors and windows and ventilate well.
- ▶ If the gas system is defective: Do not smoke; do not ignite any open flames, and do not operate electric switches (light switches etc.). Do not check tightness of gas-conducting parts and pipes with an open flame.
- ▶ Have the defective gas system repaired by an authorised specialist workshop.

Fault	Cause	Remedy
No gas	Gas bottle is empty	Change gas bottle
	Gas isolator tap closed	Open the gas isolator tap
	Regulator tap on the gas bottle is closed	Open regulator tap on the gas bottle
	External temperature is too low (-42 °C for propane gas, 0 °C for butane gas)	Wait for higher external temperatures
	Built-in appliance is defective	Contact customer service

15.5 Gas cooker

Fault	Cause	Remedy
Ignition fuse does not operate (flame does not burn after the control knobs are released)	Heat-up time is too short	Keep control knob pressed for approx. 15 to 20 seconds after ignition
	Ignition fuse is defective	Contact customer service
Flame extinguishes when being reduced to its minimum setting	Thermocouple sensor is incorrectly set	Correctly reset thermocouple sensor (do not bend). The sensor tip should protrude by 5 mm beyond the burner. The sensor neck should not be more than 3 mm away from the burner ring; if necessary, contact customer service

15.6 Heater and hot water source

In the event of a defect contact the nearest customer service workshop of the relevant appliance manufacturer. The list of addresses is enclosed with the accompanying appliance documentation. Only authorised qualified personnel may repair the appliance.



15.6.1 Trumatic S hot-air heater

Fault	Cause	Remedy
For heater with automatic ignition: Heater does not ignite	Battery on the automatic ignition empty	Change the battery on the automatic ignition

15.6.2 Truma hot water source

Fault	Cause	Remedy
The hot water source is connected to power supply but does not heat	Operating switch is switched off	Switch on operating switch; the red indicator lamp must be lit
	Operating switch defective	Contact customer service
	240 V automatic circuit breaker is switched off	Switch on the 240 V automatic circuit breaker
	240 V power supply disconnected	Connect 240 V power supply
	Fuse is defective	Replace fuse
	Heating coil in the hot water source is defective	Contact customer service

15.7 Refrigerator

In the event of a defect contact the nearest customer service workshop of the relevant appliance manufacturer. The list of addresses is enclosed with the accompanying appliance documentation. Only authorised qualified personnel may repair the appliance.

Fault	Cause	Remedy
Refrigerator does not switch on when operating in 240 V mode	No 240 V power supply	Connect the 240 V power supply
	240 V automatic circuit breaker has triggered	Switch on the 240 V automatic circuit breaker
	240 V operating voltage too low	Have the 240 V power supply checked by an authorised specialist workshop
	Fuse on the power pack is defective	Replace fuse
Refrigerator does not switch on when operating in 12 V mode	Contacts on the plug and/or in the socket have oxidised and/or are contaminated	Clean contacts and spray with contact spray
	Short circuit caused by water in the plug and/or socket	Open plug and/or socket, dry out, and spray with contact spray
	Cable interruption on the plug and/or socket	Open plug and/or socket, re-connect cable
	Fuse on the power pack is defective	Replace fuse



Fault	Cause	Remedy
Refrigerator does not switch on when operating in gas mode	Lack of gas	Open regulator tap and gas isolator tap Connect a full gas bottle
	Air in the gas pipe	Repeat ignition 3 or 4 times
	Cobwebs or burnt residue in the burning chamber	Remove the ventilation grill on the outside of the vehicle and clean the burning chamber
The desired refrigerating temperature is not achieved	Incorrect setting	Set the temperature with the temperature controller
	Too much fresh food put into it	Set the temperature with the temperature controller
	Refrigerator iced up	Defrost the refrigerator
	Insufficient ventilation	Clean the ventilation grill
	Door does not close properly	Check the door lock
	Ambient temperature is too high	Remove the ventilation grills periodically


15.8 Water supply

Fault	Cause	Remedy
Leakage water inside the vehicle	A leak has occurred	Identify leak, re-connect water pipes
No water	Water tank is empty	Replenish drinking water
	Drain cock not closed	Close drain cock
	Fuse on the power pack is defective	Replace fuse
	Water pump defective	Exchange water pump (have it exchanged)
	Water pipe snapped off	Straighten water pipe or replace
	Power pack is defective	Contact customer service
Toilet has no flush water	Water tank is empty	Replenish drinking water
	Fuse for toilet is defective	Replace fuse
Drain on the single lever mixer tap is clogged	Perlator calcified	Unclip the perlator, decalcify in vinegar water (only for products made from metal)



Fault	Cause	Remedy
Milkyiness of the water	Tank filled with dirty water	Clean water tank mechanically and chemically; then disinfect and rinse copiously with drinking water
	Residues in the water tank or water system	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
Any change in the taste or odour of the water	Tank filled with dirty water	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
	Fuel filled into the water tank by mistake	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water. If not successful: Contact a specialist workshop
	Microbiological deposits in the water system	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water
Deposits in the water tank and/or water-carrying components	Water excessively long in the water tank and in water-carrying components	Clean water system mechanically and chemically; then disinfect and rinse copiously with drinking water

15.9 Body

Fault	Cause	Remedy
Flap hinges/door hinges are difficult to operate	Flap/door hinges are not (sufficiently) lubricated	Lubricate flap hinges/door hinges with acid-free and resin-free grease
Hinges/joints in the bathroom unit/toilet compartment are difficult to operate/make a grating noise	Hinges/joints are not (sufficiently) lubricated	Lubricate hinges/joints with solvent-free and acid-free grease  ▷ Spray cans often contain solvents
Storage compartment hinges are difficult to operate/make a grating noise	Storage compartment hinges are not (sufficiently) lubricated	Lubricate storage compartment hinges with acid-free and resin-free grease



- ▷ The authorised dealers and service centres are available for any spare parts requirement.



16.1 Weight details for special equipment



- ▶ The use of accessories, parts and fittings not supplied by us may cause damage to the vehicle and jeopardize road safety. Even if an expert's report, a general type approval or a design certification exists, there is no guarantee for the proper quality of the product.
- ▶ Every alteration of the original condition of the vehicle can alter road behaviour and jeopardize road safety.
- ▶ No liability can be assumed for damage caused by products which have not been released by us. This also applies to impermissible alterations to the vehicle.

Weight details for special equipment supplied by the manufacturer are listed in the table below. If these objects are either carried in or on the vehicle and are not part of the standard equipment, they must be taken into consideration when calculating the payload.

All weight details are approximate.

Observe the max. permissible gross weight.

The table shows an extract from the list of possible special equipment and the surplus weight in each case.

Item designation	Surplus weight (kg)
Waste water tank	3
External flap, storage space	3
Spare wheel incl. support	18
Insect screen, conversion door	3
Panorama skylight	11
Stabiliser	5
Hot water source	7
Hot-air system	3





17.1 Technical data



- ▷ Only the details provided in the actual vehicle documentation shall be binding with regard to the technical data.
- ▷ The measurements as well as the net weight of the vehicle may change when mounting accessories or special equipment. Differences due to manufacturing tolerances (+/- 5 %) are possible and admissible.

Further information can be found in the manual of the base vehicle. The technical data are not a component of the instruction manual.

The technical data can be obtained from the manufacturer's documentation. Alternatively, the authorised dealer or service centre will also be happy to advise you.





12 V circuit diagram	61
12 V fuses	56
For Thetford toilet	57
12 V power supply	53
240 V circuit diagram	60
240 V connection	32, 55
Troubleshooting	114
240 V fuse	57
240 V fuse box	57
240 V power supply	54

A

Accessories, fitting	12
Adapter, thirteen-pin plug	58
Additional equipment	21
Add-on parts see special equipment	12
Air outlet nozzles, adjustment	64
Alloy wheel rims	108
Appliances	63
Manuals	12
Axle load	24

B

Basic equipment	21
Before the journey	17
Blind, cleaning	88
Blind, window	
Closing	40
Opening	40
Spring, adjustment	100
Block diagram 12 V	61
Block diagram 240 V	60
Brakes	27
Check	27, 113
Braking system, troubleshooting	113
Breakaway brake cable	18
Bulbs, changing	95
Ceiling lamp	98
Exterior lighting	95
Front lights	96
Halogen spotlight	99
Interior lighting	97
Rear lights	96
Recessed halogen light	99
Room lamp	98
Side lights	97
Types of bulbs, interior	99
Types of external bulbs	97

Bunk bed	45
Butane gas	15, 50

C

Cable reel	55
Camping gas bottles, use	16, 51
Caravan	
Correct loading	23
Pitching	29
Caravan couplings	19
BPW	19
BPW, maintenance work	94
With detachable ball neck	18
Caravan load	20, 24
Care	85
Blind	88
Curtains	87
External care	85
Furniture surfaces	87
Gas cooker	87
High-pressure cleaner, washing with	85
In the winter	89
Insect screen	87
Interior care	87
Lamps	87
Net curtains	87
PVC-floor covering	87
Roman shade	88
Sink	87
Synthetic parts, interior	87
Temporary lay-up	90
Underbody	86
Upholstery	87
Washing	85
Water pipes	88
Water system	88
Windows	86
Winter lay-up	91
Ceiling lamp	98
Central seating group, sleeping conversion	46
Changing wheels	105
Tightening torque	106, 107
With alloy wheel rims	108
Chassis number	101
Chassis, troubleshooting	113
Checklist	25, 90
Before the journey	25
Initial start-up after temporary lay-up	92
Road safety	25



Start-up	3
Temporary lay-up	90
Winter lay-up	91
Children's beds	45
Circuit diagrams	
12 V circuit diagram	61
240 V circuit diagram	60
Circulation fan	67
Cleaning	
Water canister	88
Water tank	88
Cleaning see care	85
Condensation	37
On the double acrylic glass pane	38
On the screwed connections in the floor ...	37
Condensation water see condensation	38
Connecting	17
Connecting cable see 240 V power supply ...	55
Connection to the towing vehicle	58
Connection diagram	58
Connector plug	58
Conversion door	33
Insect screen	34
Conversion door, inside	
Locking	34
Opening	34
Conversion door, outside	
Locking	33
Opening	33
Cooker	70
Corner steadies	30
Cranking down	31
Cranking up	31
Curtains, cleaning	87
Customer service	93

D

Danger of suffocation	12, 37
Detaching	20
Dimensions see technical data	121
Disposal	
Household waste	8
Sewage	8
Waste water	8
Door lock	33
Doors	
Lock	33
Troubleshooting	118

Drinking water filler neck	76
Closing	77
Opening	77
Driving in reverse	27
Driving with the caravan	27
During the journey	27

E

Electrical system	53
240 V connection, troubleshooting	114
Lighting, troubleshooting	114
Safety instructions	16
Troubleshooting	114
Entrance step	31
Environmental tips	8
Exterior lighting	
Bulbs, changing	95
Types of bulbs	97
External care	85
External connection see 240 V connection ...	32
External flaps	35
Flap lock	35, 36
External mirrors	13

F

Fault current protection switch	55
Check	57
Fire	
Behaviour in the event of	11
Extinguishing	11
Fire prevention	11
Fire risks, avoidance	11
FI-switch see fault current protection switch ...	57
Flap lock	
Closing	35, 36
Elliptical-shaped	35
Flap for toilet cassette	36
Opening	35, 36
With recessed handle	36
Fluorescent tubes, changing	98
Room lamp	98
Forced ventilation	12, 37
Furniture flaps, troubleshooting	118
Furniture surfaces, cleaning	87
Fuse box	57



Fuses		
240 V fuse	54, 57	
For the Thetford toilet	57	
In the power pack	56	
Thermal cut-out in the power pack	54	
Fuses see 12 V fuses and 240 V fuse	56	
 G		
Gas bottle compartment	15, 50	
Gas bottles		
Changing	51	
Safety instructions	15, 50	
Gas consumption	51	
Gas cooker		
Cleaning	87	
Switching off	71	
Switching on	71	
Troubleshooting	115	
Gas isolator taps	52	
Symbols	52, 63	
Gas odour	14, 49, 115	
Gas system	49	
Defect	14, 49, 115	
General instructions	14	
Safety instructions	14, 49	
Troubleshooting	115	
Gas tube, check	15, 50	
General instructions	8	
 H		
Halogen spotlight	99	
Hand crank, corner steadies	31	
Handbrake	29	
Applying	12, 29	
Releasing	29	
Handling of tyres	105	
Heat exchanger, heater, replacement	63	
Heater	64	
Air outlet nozzles, adjustment	64	
Battery on the automatic ignition, changing	66	
Circulation fan	67	
Heat exchanger, replacement	63	
Hot air distribution	64	
Initial start-up	64	
Switching off	66	
Switching on	65	
Troubleshooting	115	
Heater automatic ignition, changing the battery	66	
Heating	37	
Heating mode	37	
Heki skylight	42	
Closing	43	
Insect screen	43	
Opening	42	
Roman shade	43	
Ventilation position	43	
High rate of gas consumption	14, 49, 115	
High-pressure cleaner, washing with	85	
Hinged window		
Blind	40	
Closing	39	
Continuous ventilation	39	
Insect screen	40	
Opening	38	
Hot air distribution	64	
Hot galvanized chassis	86	
Hot water source	68	
Emptying	69	
Switching off	68	
Switching on	68	
Troubleshooting	116	
Water, filling with	69	
Hot-air heater	64	
Battery on the automatic ignition, changing	66	
Circulation fan	67	
Switching off	66	
Switching on	65	
Troubleshooting	116	
 I		
Indicator lamp, toilet	83	
Information stickers	101	
Initial start-up	17	
Inner door, troubleshooting	118	
Insect screen, cleaning	87	
Insect screen, conversion door		
Closing	34	
Opening	34	
Insect screen, Heki skylight		
Closing	43	
Opening	43	



Insect screen, windows	
Closing	40
Opening	40
Spring, adjustment	100
Inspection work	93
Inspections	93
Installation diagram	59
Thirteen pin socket	58
Installation diagram of towing vehicle	59
Interior care	87
Interior lighting	
Bulbs, changing	97
Troubleshooting	114
Types of bulbs	99

J

Jaeger plug	58
-------------	----

L

Lamps	45, 97
Cleaning	87
Lay-up	
Temporary	90
Temporary (toilet)	84
Winter lay-up	91
Leakage water inside the vehicle	117
Light metal wheel rims	
see alloy wheel rims	108
Lighting	
Front	96
Lamps, cleaning	87
Rear	96
Side	97
Troubleshooting	114
Living	33
Load	23
Load see also payload	23
Lock	
Conversion door	33
External flap	35, 36

M

Maintenance	93
Maintenance work	93
BPW	94
Braking system	94
Mass in ready-to-drive condition	21, 22
Maximum permissible gross weight	21, 22

Minimum nose weight	20
Multikon plug	58

N

Net curtains, cleaning	87
No gas	115
Nose weight	17, 20, 24

O

Operating modes, refrigerator	72
Oven see gas cooker or gas oven	70
Overrun brake	18

P

Payload	20
Calculation	22
Composition	21
Example calculation	22
Payload see also load	20
People in the caravan	13, 27
Permissible gross weight see	
maximum permissible gross weight	20
Personal equipment	21
Power pack	54
Thermal cut-out	54
Propane gas	15, 50
PVC-floor covering, cleaning	87

R

Rear axle load	17
Recessed halogen light	99
Refrigerator	72
12 V operation, switching on/off	73
240 V operation, switching on/off	73
Door lock	74
Operating modes	72
Troubleshooting	116
Ventilation grill, removal	72
Refrigerator door locking mechanism	
Closing	74
Locking in the ventilation position	74
Opening	74
Refrigerator ventilation grill, removal	72
Replacement keys	102
Risk of frost damage	16, 75, 80
Road safety	25
Checklist	25
Notes for	13



Roman shade, cleaning	88
Roman shade, Heki skylight	
Closing	43
Opening	43
Room lamp	98
Round seating group, sleeping conversion	47

S

Safety cut-out	57
Safety instructions	11
Changing wheels	105
Cooker	70
Electrical system	16
Fire prevention	11
Gas bottles	50
Gas system	14, 49
Road safety	13
Round seating group	13, 44
Towing	14
Water system	16
Safety knob, hinged window	38
Sanitary fittings	75
Serial number	101
Set of keys	17
Sewage tank	
Emptying	83
Removal	83
Sewage tank see also toilet cassette	83
Side marker light	97
Sink, cleaning	87
Skylight with snap latch	42
Closing	42
Opening	42
Skylights	41
Troubleshooting	118
Sleeping conversion	46
Central seating group	46
Round seating group	47
Single beds to lying surface	47
Spare parts	100
Spare wheel	108
Spare wheel support	108
Special equipment	119
Description	7
Marking	7
Safety instructions	12
Weight details	119
Spring on the blinds, adjustment	100

Stabiliser	19
BPW	19
BPW, maintenance work	94
Stabiliser see also caravan coupling	19
Stabilising lever	18
Start-up	
After temporary lay-up	92
After winter lay-up	92
Checklist	3
Supports see corner steadies	30
Suspension table	45
Conversion to bed foundation	45
Swivel table	44
Conversion to bed foundation	44
Symbols	
For instructions	7
Gas isolator taps	52, 63
Synthetic parts in the toilet	
and living areas, cleaning	87

T

Tables	44
Technical data	121
Television	25
Thermal cut-out	54
Thirteen-pin plug, connection diagram	58
Tightening torque, wheels	106, 107
Toilet	82
Flushing	82
Fuse	57
Indicator lamp	83
Temporary lay-up	84
Troubleshooting	117
Winter operation	84
Toilet cassette, retaining clip	83
Toilet compartment	81, 82
Towing	14
Safety instructions	14
Towing vehicle installation	59
Travel cots suitable for children	45
Troubleshooting	113
240 V connection	114
Body	118
Braking system	113
Chassis	113
Electrical system	114
Furniture flaps	118
Gas cooker	115
Gas system	115



Heater	115	Water system	
Hot water source	116	Care	88
Hot-air heater	116	Cleaning	88
Inner door	118	Disinfect	89
Lighting	114	Drinking water filler neck	76
Refrigerator	116	Emptying	80
Toilet	117	Filling	78
Water supply	117	Safety instructions	16
Tyre change see changing wheels	105	Water tank	
Tyre specifications	105	Cleaning	88
Tyres	103	Filling	77, 79
Excessive wear	13, 25, 103, 108	Water, draining	77
General instructions	103	Water, filling with	77
Handling	105	Weight details for special equipment	119
Identification	105	Wheel chocks	30
Load-carrying capacity	106	Wheel rim size	106
Tyre pressure	108	Wheel rim type	103
Tyre selection	104	Wheels	103
		Windows	37
U		Blind	40
Underbody, maintenance	86	Cleaning	86
Upholstery, cleaning	87	Insect screen	40
		Winter care	89
V			
Vehicle identification plate	101		
Vehicle jack	7, 107		
Vehicle lighting see exterior lighting	95		
Vehicle, washing	85		
Ventilation	37		
W			
Warning stickers	101		
Warranty	5		
Warranty certificate	5		
Washing with a high-pressure cleaner	85		
Waste water tank	32, 81		
Emptying	81		
Water canister	76		
Cleaning	88		
Filling	78		
Water pipes, cleaning	88		
Water pump	75, 78		
Water supply			
General	75		
Troubleshooting	117		